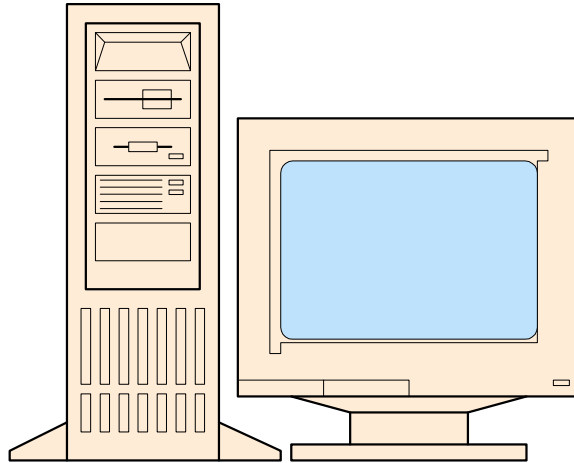


VARIAN

medical systems



INSTALLATION DATA PACKAGE

Gating Section
Respiratory Gating[®] System
Equipment Information

"Respiratory Gating" is a trade name for Varian Medical Systems.

*English Version
January 2008*

**Varian Respiratory Gating
Equipment Information**

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Respiratory Gating Section Notes

Information and Support

This section describes only information on specific equipment facility requirements for Varian *Respiratory Gating system*. For more information, contact your nearest regional support office or Varian's main Planning Department at:

Varian Medical Systems
Planning Department
911 Hansen Way, Building 3 M/S C-165
Palo Alto, CA 94304-1028
(800) 278-2747
(650) 424-5945
(650) 424-6252 Fax
<http://www.varian.com>

Varian/Customer Sales Contract specifies:

- Services supplied by Varian
- Computer hardware supplied by Varian
- Application Software version to be supplied by Varian
- Respiratory Gating interface to Clinac, Acuity or CT Scanner (as applicable)
- Special Terms or condition of sale
- Estimated ship date
- Shipping address

Equipment Information

To simplify the design process, we suggest that the Architect and Customer determine, as early as possible, all equipment configurations ordered or planned for the future. Below is a summary of the most common configurations:

Respiratory Gating System may be connected to (please list all the machines in your department):

Clinac 2100C/D, 2300C/D S/N.....(yes/no)
Clinac 21/23 EX S/N..... (yes/no)
Clinac 600C/D, 6EX S/N (yes/no)
iX, Trilogy S/N.....(yes/no)
Acuity (yes/no)
CT Simulator (yes/no)
Other Simulator (yes/no)

The Respiratory Gating (Real-Time Position Management) system monitors and corrects for tumor/lesion movement with respiration during radiation therapy. The Respiratory Gating system employs a video camera and real-time digital image processing to monitor the movement of a passive, infrared-reflective marker placed on the patient's chest or abdomen. Respiratory gating techniques require the use of one gating system for treatment simulation and a second gating system for Clinac treatment delivery. Simulator configuration information (fluoroscopy or CT, vendor, model, etc.) must be provided to Varian in advance of product shipment and installation.

Typical Duties of the Parties

To help assure a trouble-free project, good communications between the Customer, Architect and Contractor, and a clear agreement with the assignment of responsibilities involved in the construction or remodeling of the *Clinac, Simulator or CT Simulator* room, we suggest inclusion of the following material in the appropriate sections of the Architectural Specification. Refer to the Customer/Varian

Terms and Conditions of Sale and the Customer Purchase Order for a complete description of project-specific responsibilities.

The Customer shall:

- Provide supervision and temporary services/facilities.
- Provide As-Built Documentation (existing facility).
- Provide seismic testing for all supportive anchoring.
- Provide Respiratory Gating Project Manager
- Assign an internal representative for acceptance verification with Varian Installer
- Schedule initial training for staff with Varian applications manager
- Verify the Varian Pre-Installation Checklist is completed.
- Provide equipment and material storage during construction.
- Provide Punch-List resolution and Warranty follow-up.

The Architect shall:

- Provide complete Architectural & Engineering Construction Documents for review.
- Provide Construction Regulatory Agency approval.
- Monitor conformance of the construction to the Construction Documents.
- Provide As-built documentation. (existing Facility)

The Contractor shall:

- Provide structural alterations as required.
- Provide casework, cabinetry, doors or other millwork.
- Provide electrical systems as required for room occupancy, including lighting and power distribution.
- Provide and connect electrical utilities required for the *Gating* system.
- Provide periodic and final cleanup.
- Remove Varian shipping crates.
- Pull Varian interconnect cables.
- Provide and pull network cables, where required.
- Maintain treatment room and control equipment area in a dust free and vandal-proof condition during *Gating System* assembly and testing.

Varian shall:

- Provide *Respiratory Gating* equipment.
- Provide planning assistance.
- Provide Construction Document review.
- Provide Installation and testing.
- Provide Customer Training.

Information and Support

The purpose of the IDP is to aid Customers, Architects, Engineers and Contractors in their understanding of Varian equipment requirements and facility design issues.

The IDP consists of equipment sections as listed below:

Section 1- Clinac 2100C/D,2300C/D,21EX,23EX, iX,Trilogy
 Section 2- Clinac 600C(/D),6EX,4EX
 Section 3- Acuity Simulator
 Section 4- VariSource, GammaMed
 Section 5- Treatment Planning ARIA and Eclipse
 Section 7- Silhouette Edition Clinac

For more information, contact your nearest regional support office or Varian's main Planning Department at:

Varian Medical Systems
 Planning Department
 911 Hansen Way, Bldg. 3 M/S C-165
 Palo Alto, CA 94304-1028
 (800) 278-2747
 (650) 424-5945
 (650) 424-6252 Fax
<http://www.varian.com/support>

Digital IDP

Available from the *Varian Web Page are Autocad .DWG and .DXF files for all sections of the IDP. These IBM PC-compatible files contain the Printed IDP details that are most useful for incorporation into the Architect's contract documents. A Printed Installation Data Package or Digital Installation Data Package is required to use the Digital Drawing files.

Included in each self un-archiving file is the complete keynote database saved as a comma-delimited ASCII text file that can be inserted into most word processors, spreadsheets and databases. Each detail, as designated by a letter in the lower left corner, is saved in a separate file for easy insertion into the Architect's documents. A CAD file name can be found in the lower right corner of each detail. These files are provided by Varian to simplify the design and drafting process and must be modified by the Architect and Engineers to satisfy all site-specific conditions and regional regulations.

* Download Autocad DWG and DXF files from:
<http://www.varian.com/support>

Keynotes

The drawings in the following section utilize keynotes to describe all non-graphic information. To simplify their use, these keynotes have been organized into the following general categories:

General Notes

10 General Notes

Layout Notes

20 General Layout Notes
 21 Equipment Layout / Clearances
 22 Rigging
 23 Dimension Descriptions
 24 Installation Notes

Finish Notes

30 Finishes
 31 Control Equipment Casework
 32 Room Storage Casework

Structural/Anchorage Notes

40 Base Frame Installation / Anchorage
 41 Component Anchorage Brackets
 42 Laser Positioning Light Mounting

Mechanical Notes

50 General Mechanical Notes
 51 Plumbing
 52 Coolant System
 53 Ventilation
 54 Compressed Air System
 55 Fire Protection

Electrical Notes

60 General Electrical Specifications
 61 Laser Positioning Lights
 62 Room Lighting
 63 Safety Device Systems
 64 Cable Access Runs
 65 Pull / Junction Boxes
 66 Circuit Breakers / UVRs
 67 Communications
 68 Misc Electrical Components
 69 Power Receptacles / Switches

Shielding Notes

70 Radiation Shielding
 71 Other Shielding

Room Description Notes

80 Room Labels / Descriptions

Varian Component Dimensions, Weights and Other Information

Information regarding Varian-supplied components, such as weights, dimensions, wattage and decibel output levels, is located on the *Varian-Supplied Component Information Table* at the end of this section.

The Planning Department provides:

Standard and Supplemental Data

Installation Data Package (IDP) - This package contains equipment and facility information required by the Customer, as well as the Customer's Architect, Engineers and Contractor. The IDP outlines the facility requirements to insure the quick and efficient installation of Varian equipment. All information provided in the IDP shall be processed by the Customer's Design Professionals for local regulatory agency and site-specific facility requirements. This information must then be incorporated into the Construction Documents. Since Varian equipment does not require modification to suit specific sites and all facility requirements are defined in the IDP, Varian does not provide shop drawings.

Supplemental Information - There are many supplemental documents available from the Planning Department's web page www.varian.com/support.

Typical documents available include:

- AutoCAD drawing files.
- Sample Seismic Calculations - These are available on request for all *Clinac* and *Acuity* models. These studies analyze the forces acting on the equipment's base frame connection to the floor.
- Specialized shielding documents.
- Third Party specification documents.

Site-specific Support

All site-specific documents supplied by Varian are provided to aid the Customer during the facility design and construction document preparation processes. These documents are intended to supplement the IDP with site-specific recommendations only. They do not provide additional engineering information and are not construction documents. All information provided in the IDP shall be processed by the Customer's Design Professionals for local regulatory agency and site-specific facility requirements. This information must then be incorporated into the Construction Documents. Since Varian equipment does not require modification to suit specific sites and all facility requirements are defined in the IDP, Varian does not provide shop drawings.

Preliminary Department Plan Review – The planning Department will require a preliminary plan of the proposed department. Upon receiving the plan we will comment on the following: Circulation paths, rig paths, special relationships, control area size and configuration, accelerator and or simulator room size and configuration. Upon request Varian can supply to our Customer or the Customer's Design Professionals examples of various department floor plans ranging in size and configuration including one or multiple vault layouts.

Proposal Drawing - This drawing shows the equipment in the proposed room in both plan and cross-section. It includes a shielding analysis of the equipment room with the proposed equipment. Any recommended additions to existing shielding are shown. It also includes recommendations for a schematic console layout, cabinets, sinks and support equipment as well as references to the appropriate sections of the IDP for these items. Where there are required site-specific variances to the information in the IDP (usually on existing facilities), additional information may be shown on this drawing. The Planning Department requires a dimensioned floor plan (or an extracted DWG or DXF CAD file of the specific area) room section, existing or proposed shielding layout and existing utility information.

Site Visit by Planning - In special circumstances, a Planning Department or other Varian representative will visit the site to review the facility or to consult with the Customer, Architect, and Engineers.

Construction Document Review - The Review of the Customer's construction documentation is usually Planning Department's final contact with the project. In this review

the architectural and engineering documents are checked to determine that the required additions or modifications to the facility are appropriate for Varian equipment. Varian checks only for those items that affect the operation of our equipment. Varian does not check for compliance with various regulatory agency requirements. The review is made to the extent that the submitted plans allow. This does not include verification of the adequacy of radiation shielding, which must be approved by the facility's Physicist of Record. The review does not constitute nor imply approval of either the architectural or engineering documents. Varian expressly denies any responsibility for the accuracy or adequacy of the construction documents prepared by the Customer's design consultants.

North American Architectural Planning Support

To obtain further Architectural support or information contact:

Western Region - Main Office

Varian Medical Systems
 Planning Department
 911 Hansen Way, Bldg. 3 M/S C-165
 Palo Alto, CA 94304-1028
 (800) 278-2747
 (650) 424-5945
 (650) 424-6252 Fax
<http://www.varian.com/support>

Central Region

Varian Medical Systems
 Planning Department
 403 International Parkway, Suite 503
 Richardson, TX 75081
 (972) 238-1855
 (972) 644-2681 Fax

Northern Region

Varian Medical Systems
 Planning Department
 2397 Hawthorne Drive
 Yorktown Heights, NY 10598
 (914) 243-2953
 (914) 243-2953 Fax

Southern Region

Varian Medical Systems
 Planning Department
 2250 Newmarket Parkway, Suite 120
 Marietta, GA 30067
 (678) 255-3838
 (770) 955-6936 Fax

International Support

<http://www.varian.com/support>



North American Regional Installation Offices

An Installation Project Manager inspects the on-site conditions and construction preparations. The Project Manager also supervises critical construction phases, such as base frame installation and final connections. All Planning Department correspondence will identify the Installation Project Manager for the project site. The regional office locations are:

Northern Region

Regional Installation Project Manager
 Varian Medical Systems Service
 200 East Howard Street, Suite 202
 Des Plaines, IL 60018
 (847) 296-0660
 (847) 296-8316 Fax

Southern Region

Regional Installation Project Manager
 Varian Medical Systems Service
 2250 Newmarket Parkway, Suite 120
 Marietta, GA 30067
 (770) 955-1775
 (770)984-6249 Fax

Education Department

For information regarding Varian training courses, contact:

Education Department

Varian Medical Systems
 6883 Spencer Street
 Las Vegas, NV 89119
 (702) 938-4800
 (702) 938-4805 Fax

North American Regional Sales Offices

The Varian Sales Manager is most familiar with the specific equipment order information. To verify equipment ordered, including specific options to be provided, contact either the Customer or the District Sales Manager. The regional office locations are:

Atlanta, Georgia

Varian Medical Systems
 2250 Newmarket Parkway, Suite 120
 Marietta, GA 30067
 (770) 955-1367
 (770) 984-6249 Fax

Chicago, Illinois

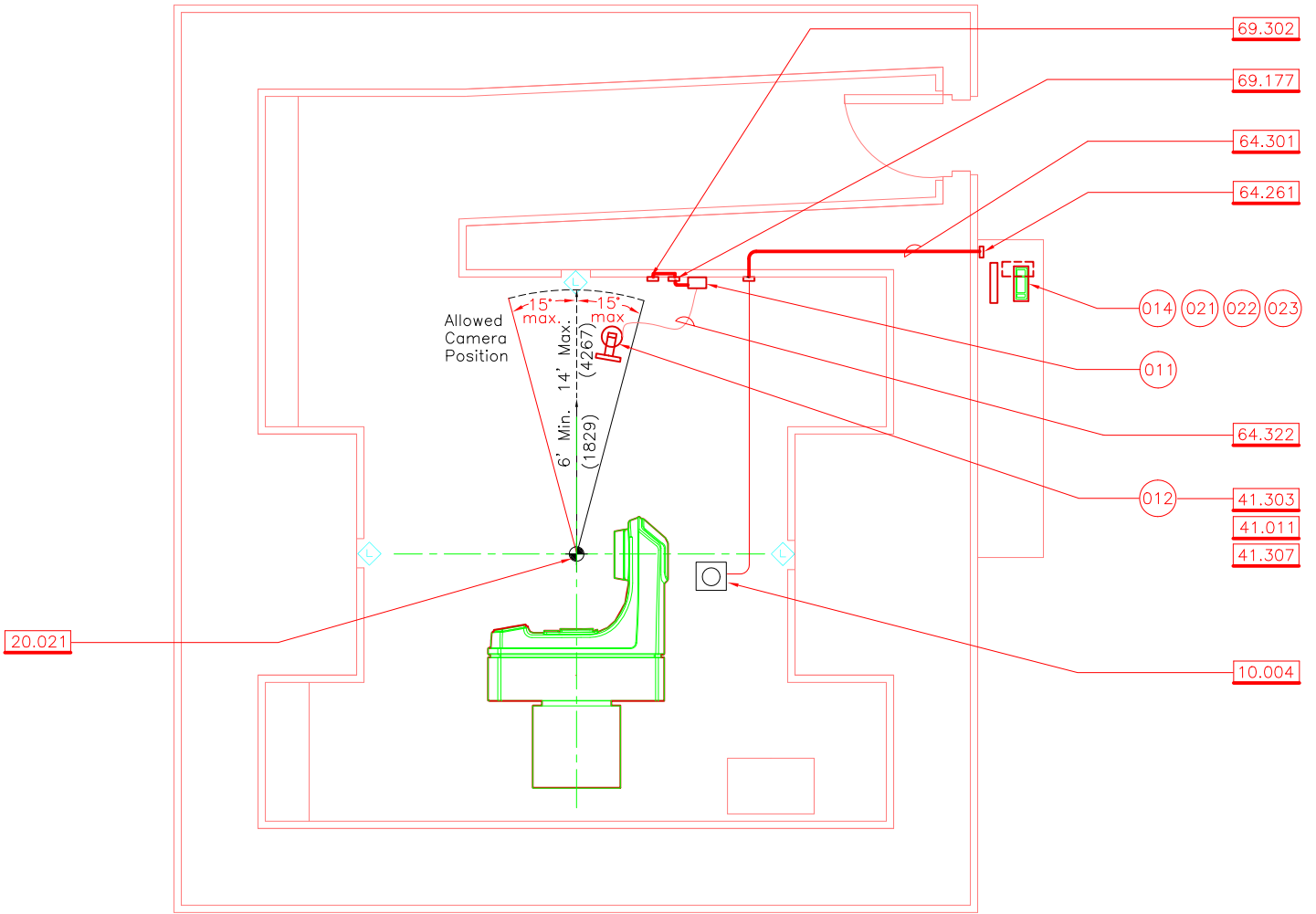
Varian Medical Systems
 200 East Howard Street, Suite 202
 Des Plaines, IL 60018
 (847) 296-5533
 (847) 296-0043 Fax

New Jersey

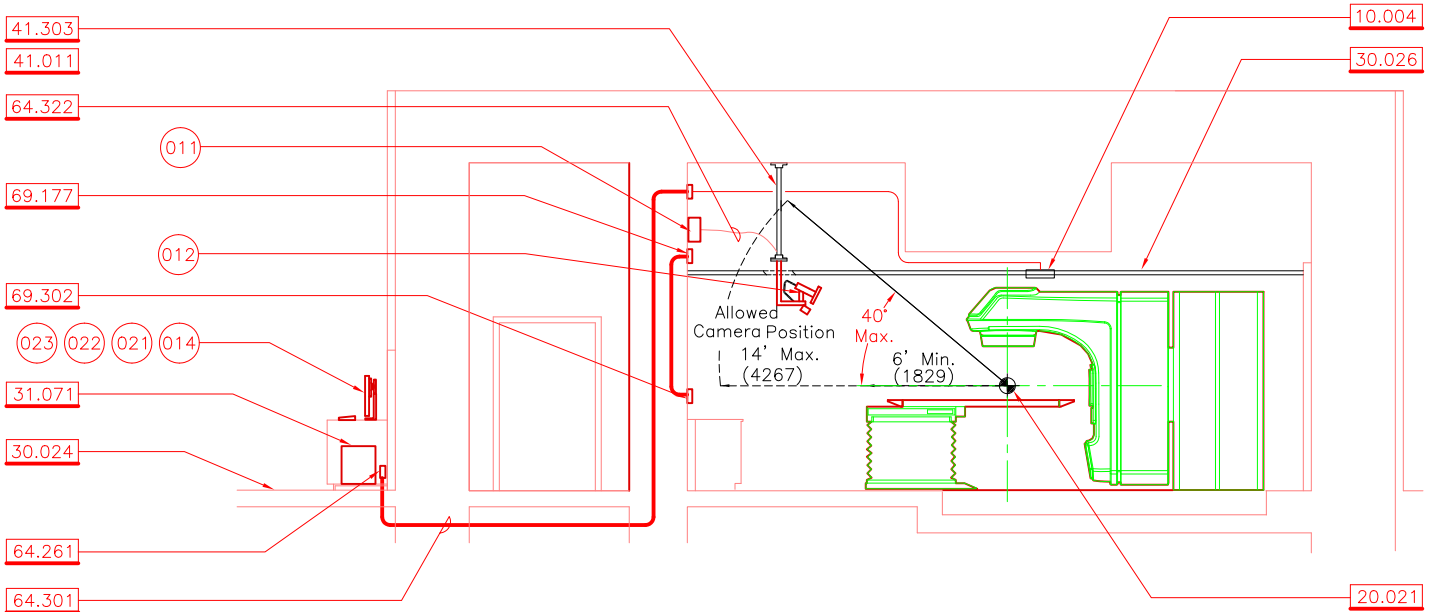
Varian Medical Systems
 100 Walnut Avenue
 Clark, NJ 07066
 (732) 381-5300
 (732) 381-1060 Fax

Southern California

Varian Medical Systems
 650 East Parkridge Suite 109
 Corona, CA 92879
 (909) 280-4401
 (909) 280-4300 Fax



B Respiratory Gating Installation - Typical Clinac Room Plan View 10.124 NOT TO SCALE IDP200002



A Respiratory Gating Installation - Typical Clinac Room Section 10.124 NOT TO SCALE IDP200001

	Refer to the Varian Components table.	Respiratory Gating Installation Typical Clinac Treatment Room				
	Not For Construction					
G.1.0 :page	planning dept.	© Varian Medical Systems 2004 All rights reserved.	24Jan08	revision: 3	doc. #: 200001	page: G.1.0

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

20 - General Layout Notes

20.021

Isocenter - This is the primary reference point for Varian equipment. Show the isocenter location clearly on all relevant drawings. Maintain the isocenter location on site by extending perpendicular axis lines along slab and up walls in all four directions. The isocenter heights for Varian systems fall within 4'-2" to 4'-4.5". (1267 to 1330) The installed Gating Camera location shall be the same location in the Simulator and Clinac treatment rooms.

If using gating with a Non-Varian machine, verify isocenter with specific vendor.

30 - Finishes

30.024

As with most computer components, the electronic components for this equipment are sensitive to localized static electricity. Carpeting or other flooring adjacent to the equipment in the room or at the control equipment area should not exceed a 2.0 kV rating at 20% relative humidity when measured as outlined by the methods in AATCC-134. Retrofit static dissipative coatings are also available from various manufacturers. Carpet, while otherwise advantageous, can make gurney movement difficult. Floor stains are common due to the use of dyes to mark reference points on patients. Many facilities use carpet squares that can be replaced or cleaned and allow access to floor duct if used.

30.026

Exposed grid ceilings allow for access to the power supply without the use of access doors. Service at the equipment is simplified where there are removable ceiling tiles. Coordinate the layout of ceiling tile to insure that ceiling support system does not interfere with the camera support and bracket.

31 - Control Equipment Casework

31.071

Provide a minimum 3"(75) air and cable space at sides, top and rear of all computers and monitors.

41 - Component Anchorage Brackets

41.011

If equipment is to be anchored to a wall or ceiling, provide appropriate structural backing. Camera mounting bracket (by Varian), bracket support (by Customer). Install per bracket manufacturer's instructions. Verify mounting height with local codes and other requirements described in the IDP for this product.

41.303

The Gating Camera can be mounted either from the ceiling or on the wall per the customers preference. The Installation Data Package (doc. #: 200007) contains mounting details for either option.

41.307

The Camera position in the Clinac treatment room should be as close as possible to the location of the camera in the Simulator room, to plus or minus 12". For use with CT simulators the camera in the Clinac room should be as close as possible to the center line of the couch.

64 - Cable Access Runs

64.261

Except as noted, all conduits, pull boxes and junction boxes shall be supplied, sized and located by the Customer.

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

64.322

If conduit is required, provide 1 1/2" (38) diameter conduit. The distance from the Power Module, RPM Gating to the Respiratory Gating Camera not to exceed 20'-0" (6096).


69 - Power Receptacles / Switches

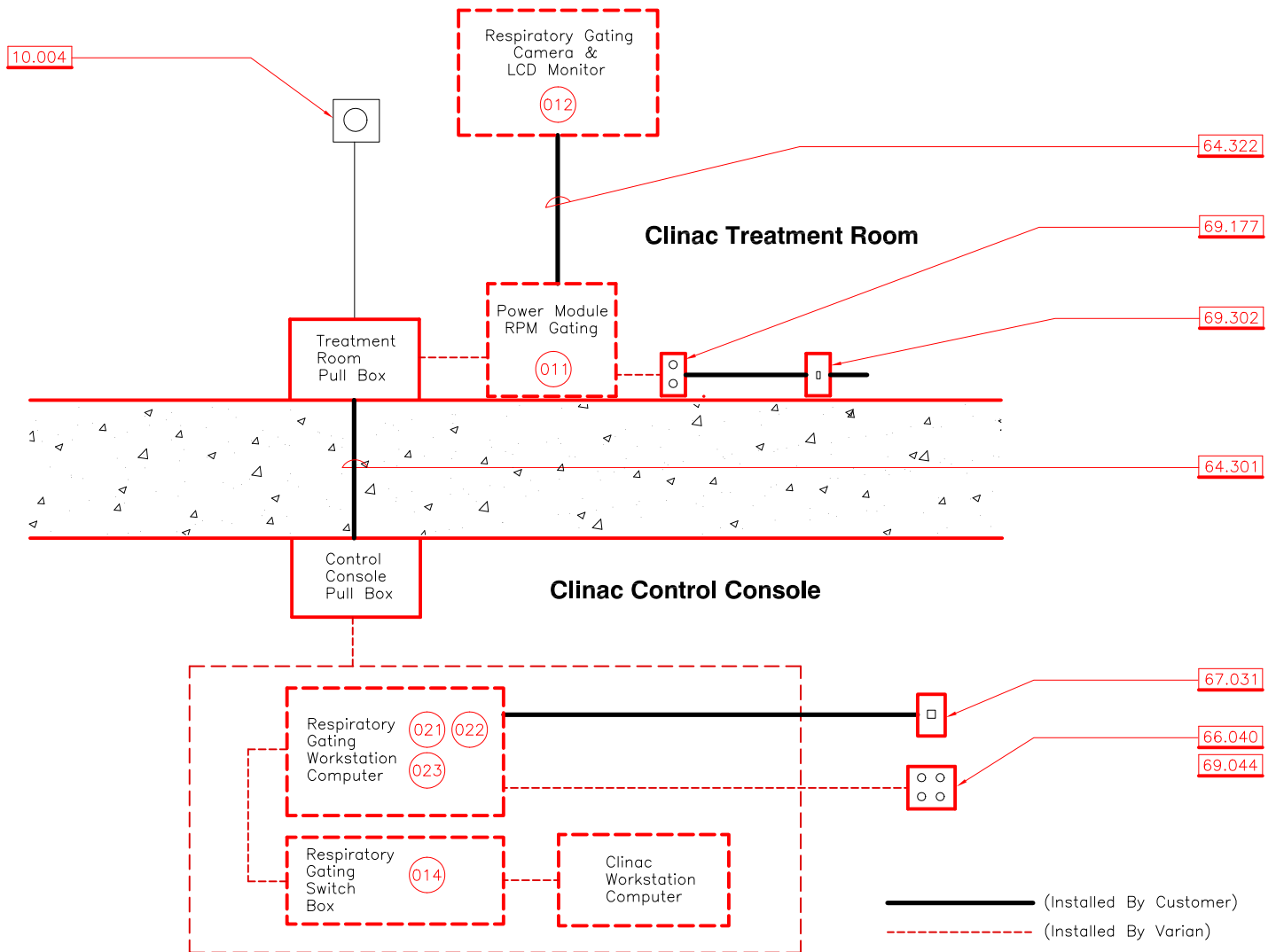
69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

69.302

Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Typical Clinac Treatment Room				
	Not For Construction					
G.1.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200001	page: G.1.1



Respiratory Gating Components							
Key	Equipment	Height inch (mm)	Width inch (mm)	Depth inch (mm)	Weight lb (kg)	Max Watts	Max dbA
011	Power Module, RPM Gating	12 (305)	10 (254)	6 (152)	13.5 (6)	n/a	n/a
012	Respiratory Gating Camera & Brkt.	11.5 (292)	6 (152)	8 (203)	7 (3)	100	n/a
013	Respiratory Gating Camera & Brkt. (CT)	23 (584)	18.5 (470)	9.5 (241)	8 (3.6)	100	n/a
014	Respiratory Gating Switchbox Assembly	2.4 (61)	6.9 (175)	4.8 (122)	1 (0.5)	n/a	n/a
021	Workstation Keyboard	2 (51)	19 (483)	8 (203)	4 (2)	n/a	n/a
022	Workstation Computer	19 (483)	8 (203)	17 (432)	27 (12)	240	n/a
023	Workstation Monitor	20 (508)	22 (559)	4 (102)	18 (8)	n/a	25

10.124

IDP200003

	000 Refer to the Varian Components table.	Respiratory Gating Installation Clinac Interconnect Wiring				
	Not For Construction					
G2.0 :page	planning dept.	© Varian Medical Systems 2004 All rights reserved.	24Jan08	revision: 3	doc. #: 200002	page: G.2.0

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

64 - Cable Access Runs

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

64.322

If conduit is required, provide 1 1/2" (38) diameter conduit. The distance from the Power Module, RPM Gating to the Respiratory Gating Camera not to exceed 20'-0" (6096).

66 - Circuit Breakers / UVRs

66.040

Provide 20 amp at 120 Vac or 10 amp at 240 Vac dedicated circuit breakers for auxiliary equipment.

67 - Communications

67.031

Provide network cabling outlets at all server or workstation equipment locations. All network cabling must be in place and tested prior to equipment installation. Network patch panels, hubs and routers are typically located in a server room or closet.

69 - Power Receptacles / Switches

69.044


Provide a grounded 4 plex electrical power receptacle for Gating option components. Locate adjacent to the underside of the counter to provide maximum power cable extension room.

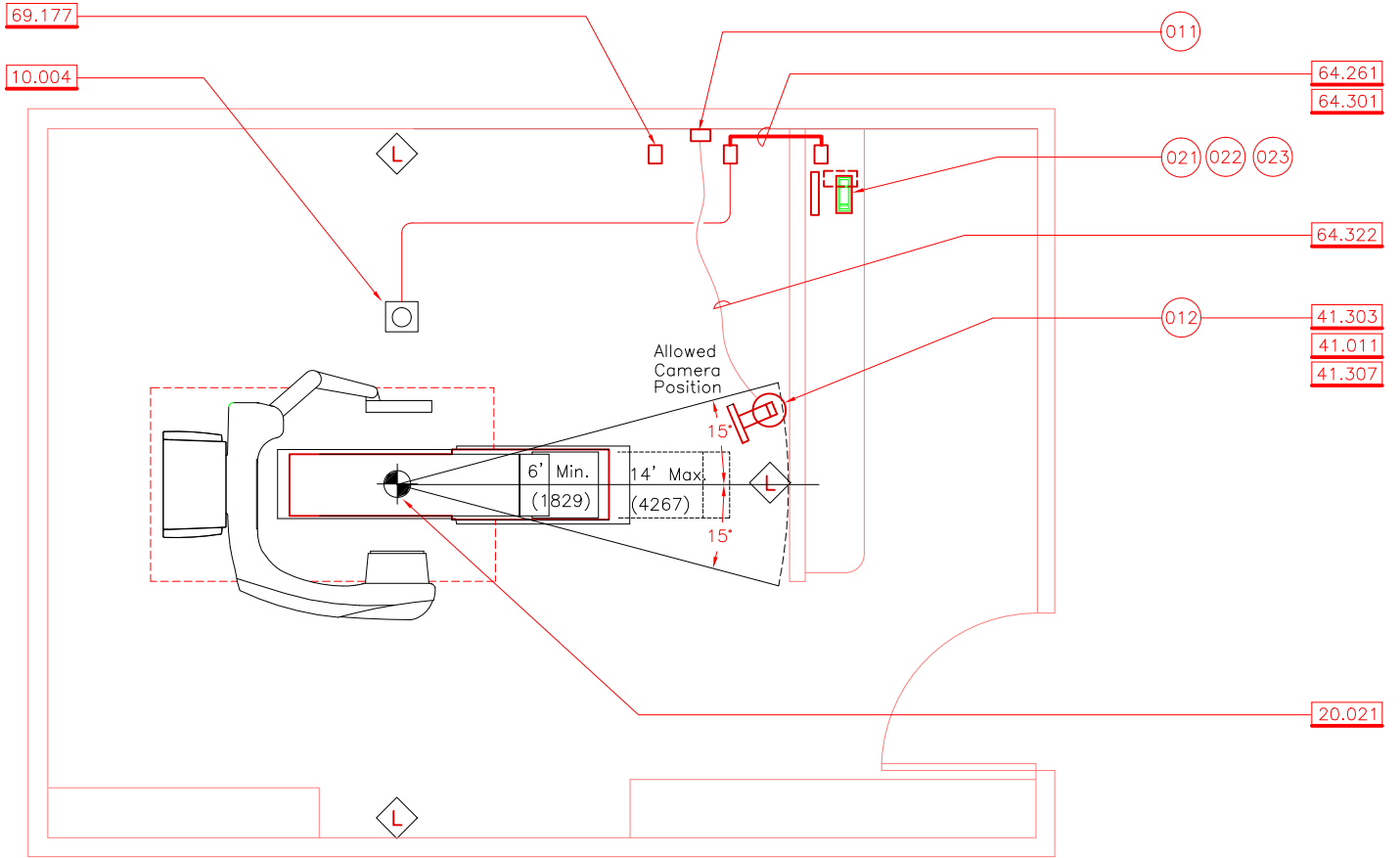
69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

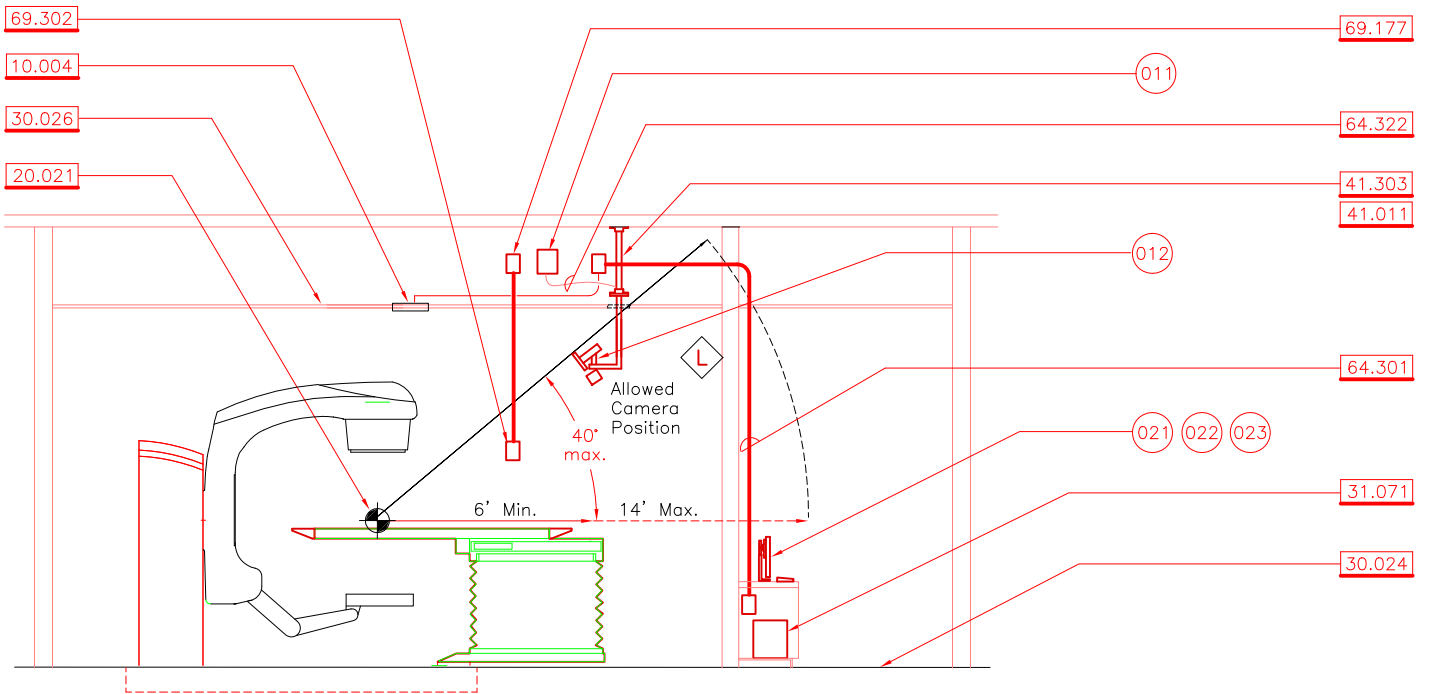
69.302

Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Clinac Interconnect Wiring				
	Not For Construction					
G.2.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200002	page: G.2.1



B Respiratory Gating Installation - Typical Acuity Room Plan 10.124 NOT TO SCALE IDP200012



A Respiratory Gating Installation - Typical Acuity Room Section 10.124 NOT TO SCALE IDP200011

	000 Refer to the Varian Components chart on page G2.0	Respiratory Gating Installation Typical Acuity Room				
	Not For Construction					
G3.0 :page	planning dept.	© Varian Medical Systems 2004 All rights reserved.	24Jan08	revision: 3	doc. #: 200033	page: G.3.0

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

20 - General Layout Notes

20.021

Isocenter - This is the primary reference point for Varian equipment. Show the isocenter location clearly on all relevant drawings. Maintain the isocenter location on site by extending perpendicular axis lines along slab and up walls in all four directions. The isocenter heights for Varian systems fall within 4'-2" to 4'-4.5". (1267 to 1330) The installed Gating Camera location shall be the same location in the Simulator and Clinac treatment rooms.

If using gating with a Non-Varian machine, verify isocenter with specific vendor.

30 - Finishes

30.024

As with most computer components, the electronic components for this equipment are sensitive to localized static electricity. Carpeting or other flooring adjacent to the equipment in the room or at the control equipment area should not exceed a 2.0 kV rating at 20% relative humidity when measured as outlined by the methods in AATCC-134. Retrofit static dissipative coatings are also available from various manufacturers. Carpet, while otherwise advantageous, can make gurney movement difficult. Floor stains are common due to the use of dyes to mark reference points on patients. Many facilities use carpet squares that can be replaced or cleaned and allow access to floor duct if used.

30.026

Exposed grid ceilings allow for access to the power supply without the use of access doors. Service at the equipment is simplified where there are removable ceiling tiles. Coordinate the layout of ceiling tile to insure that ceiling support system does not interfere with the camera support and bracket.

31 - Control Equipment Casework

31.071

Provide a minimum 3"(75) air and cable space at sides, top and rear of all computers and monitors.

41 - Component Anchorage Brackets

41.011

If equipment is to be anchored to a wall or ceiling, provide appropriate structural backing. Camera mounting bracket (by Varian), bracket support (by Customer). Install per bracket manufacturer's instructions. Verify mounting height with local codes and other requirements described in the IDP for this product.

41.303

The Gating Camera can be mounted either from the ceiling or on the wall per the customers preference. The Installation Data Package (doc. #: 200007) contains mounting details for either option.

41.307

The Camera position in the Clinac treatment room should be as close as possible to the location of the camera in the Simulator room, to plus or minus 12". For use with CT simulators the camera in the Clinac room should be as close as possible to the center line of the couch.

64 - Cable Access Runs

64.261

Except as noted, all conduits, pull boxes and junction boxes shall be supplied, sized and located by the Customer.

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

64.322

If conduit is required, provide 1 1/2" (38) diameter conduit. The distance from the Power Module, RPM Gating to the Respiratory Gating Camera not to exceed 20'-0" (6096).

67 - Communications

67.031

Provide network cabling outlets at all server or workstation equipment locations. All network cabling must be in place and tested prior to equipment installation. Network patch panels, hubs and routers are typically located in a server room or closet.

69 - Power Receptacles / Switches

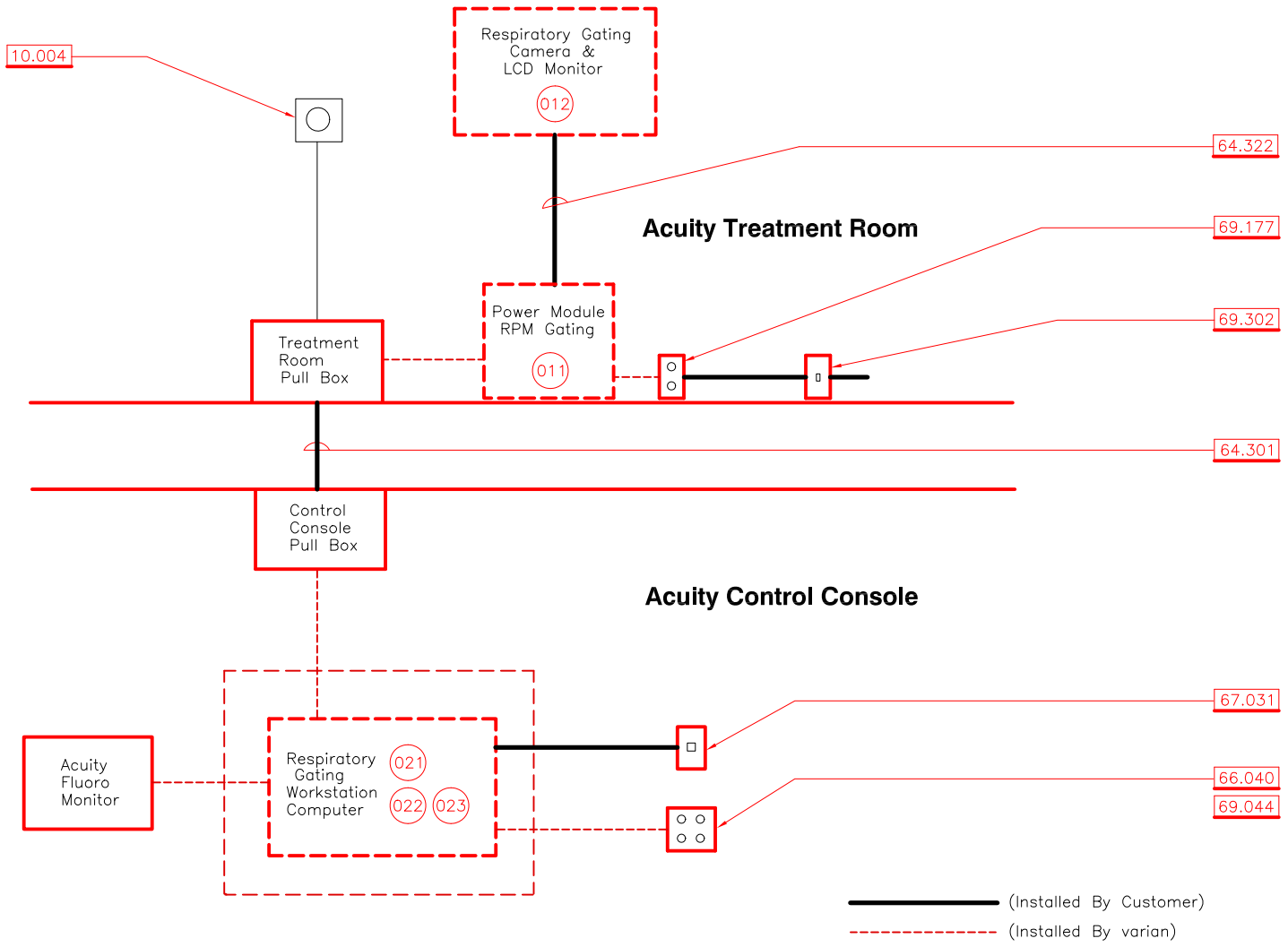
69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

69.302

Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

VARIAN medical systems	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Typical Acuity Room				
	Not For Construction					
G.3.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200033	page: G.3.1



Respiratory Gating Components							
Key	Equipment	Height inch (mm)	Width inch (mm)	Depth inch (mm)	Weight lb (kg)	Max Watts	Max dba
011	Power Module, RPM Gating	12 (305)	10 (254)	6 (152)	13.5 (6)	n/a	n/a
012	Respiratory Gating Camera & Brkt.	11.5 (292)	6 (152)	8 (203)	7 (3)	100	n/a
013	Respiratory Gating Camera & Brkt. (CT)	23 (584)	18.5 (470)	9.5 (241)	8 (3.6)	100	n/a
014	Respiratory Gating Switchbox Assembly	2.4 (61)	6.9 (175)	4.8 (122)	1 (0.5)	n/a	n/a
021	Workstation Keyboard	2 (51)	19 (483)	8 (203)	4 (2)	n/a	n/a
022	Workstation Computer	19 (483)	8 (203)	17 (432)	27 (12)	240	n/a
023	Workstation Monitor	20 (508)	22 (559)	4 (102)	18 (8)	n/a	25

10.124

IDP200013

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

64 - Cable Access Runs

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

64.322

If conduit is required, provide 1 1/2" (38) diameter conduit. The distance from the Power Module, RPM Gating to the Respiratory Gating Camera not to exceed 20'-0" (6096).

66 - Circuit Breakers / UVRs

66.040

Provide 20 amp at 120 Vac or 10 amp at 240 Vac dedicated circuit breakers for auxiliary equipment.

67 - Communications

67.031

Provide network cabling outlets at all server or workstation equipment locations. All network cabling must be in place and tested prior to equipment installation. Network patch panels, hubs and routers are typically located in a server room or closet.

69 - Power Receptacles / Switches

69.044


Provide a grounded 4 plex electrical power receptacle for Gating option components. Locate adjacent to the underside of the counter to provide maximum power cable extension room.

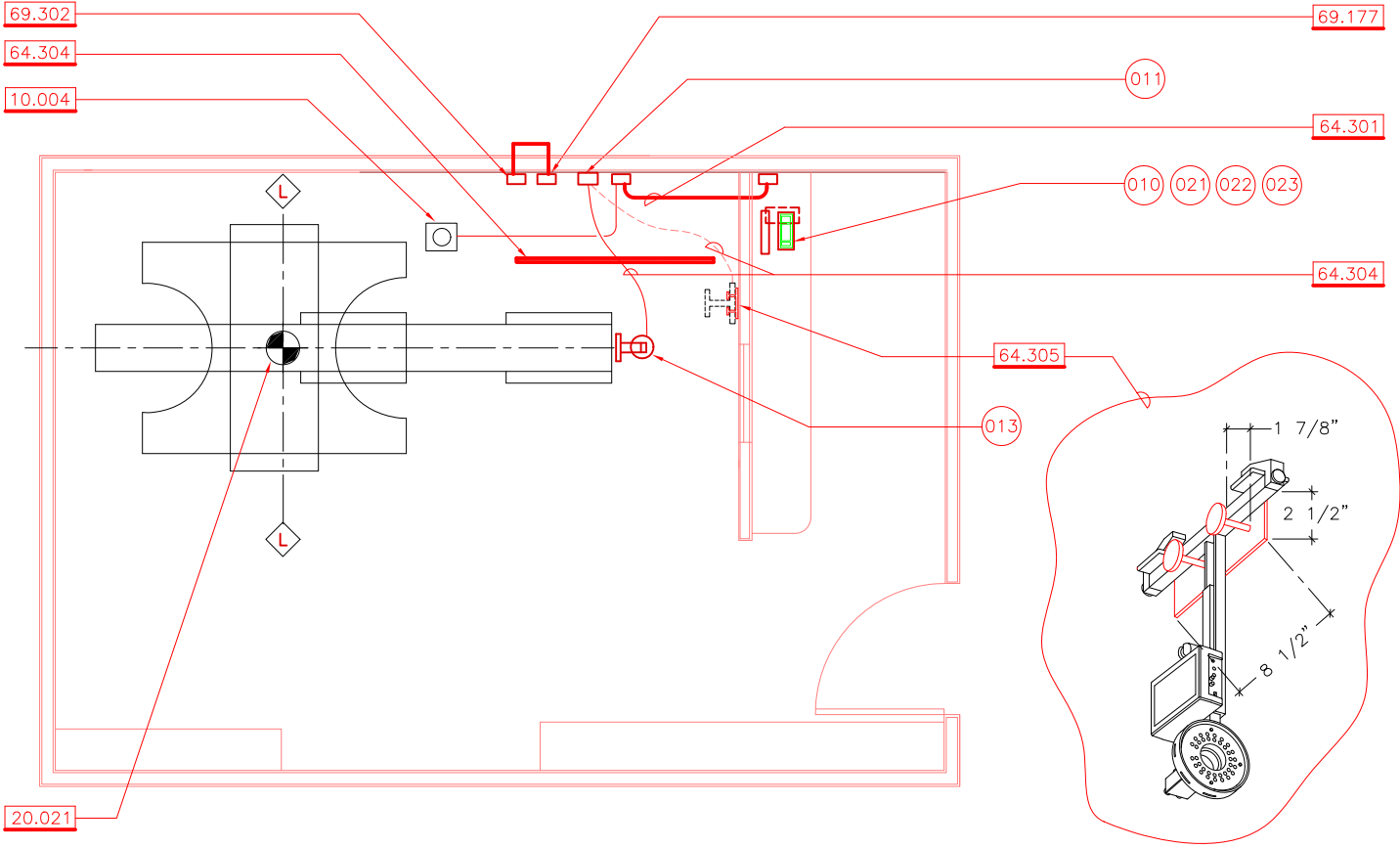
69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

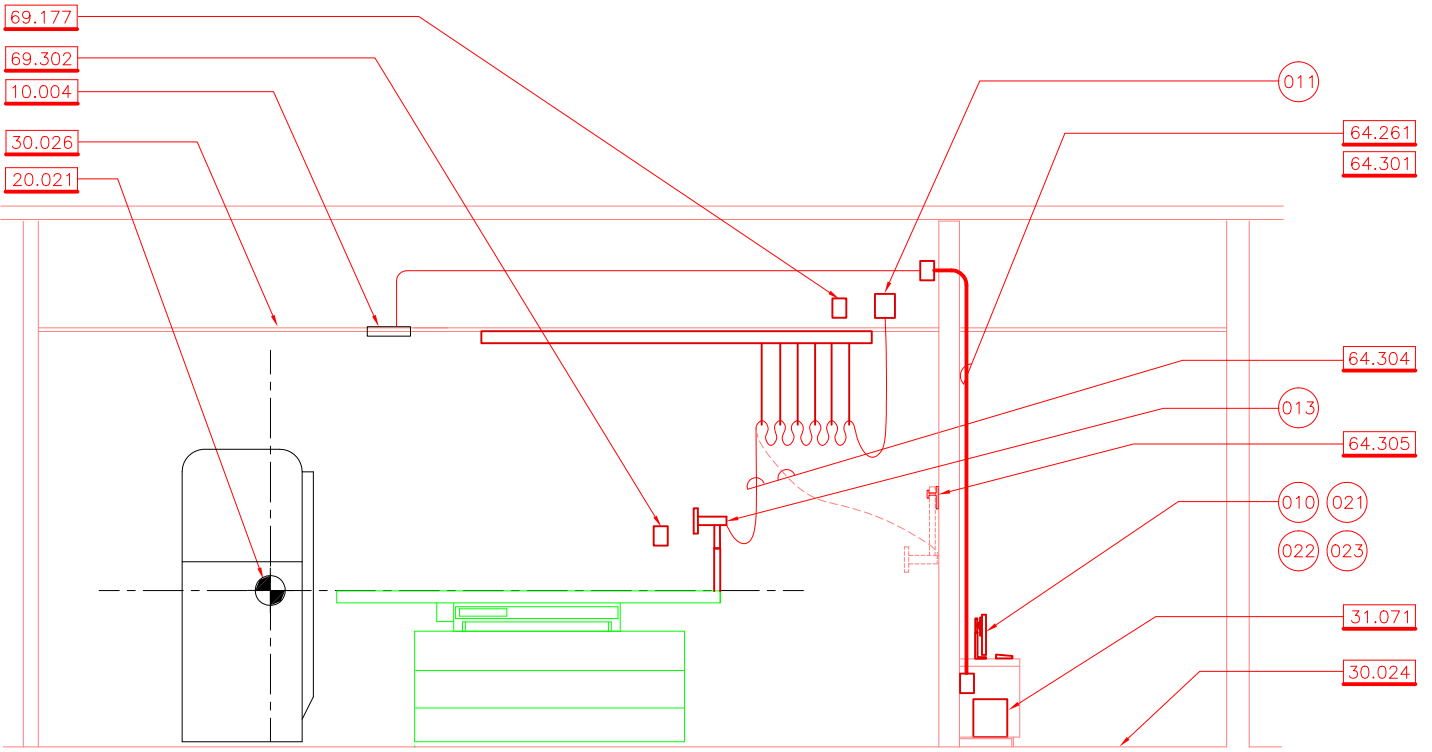
69.302

Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Acuity Interconnect Wiring				
	Not For Construction					
G.4.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200034	page: G.4.1



B Gating Installation - Typical CT Room Plan 10.124 NOT TO SCALE IDP200008



A Gating Installation - Typical CT Room Section 10.124 NOT TO SCALE IDP200007

		Respiratory Gating Installation Typical CT Simulator Room				
	Not For Construction					
G.5.0 :page	planning dept.	© Varian Medical Systems 2004 All rights reserved.	24Jan08	revision: 3	doc. #: 200005	page: G.5.0

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

20 - General Layout Notes

20.021

Isocenter - This is the primary reference point for Varian equipment. Show the isocenter location clearly on all relevant drawings. Maintain the isocenter location on site by extending perpendicular axis lines along slab and up walls in all four directions. The isocenter heights for Varian systems fall within 4'-2" to 4'-4.5". (1267 to 1330) The installed Gating Camera location shall be the same location in the Simulator and Clinac treatment rooms.

If using gating with a Non-Varian machine, verify isocenter with specific vendor.

30 - Finishes

30.024

As with most computer components, the electronic components for this equipment are sensitive to localized static electricity. Carpeting or other flooring adjacent to the equipment in the room or at the control equipment area should not exceed a 2.0 kV rating at 20% relative humidity when measured as outlined by the methods in AATCC-134. Retrofit static dissipative coatings are also available from various manufacturers. Carpet, while otherwise advantageous, can make gurney movement difficult. Floor stains are common due to the use of dyes to mark reference points on patients. Many facilities use carpet squares that can be replaced or cleaned and allow access to floor duct if used.

30.026

Exposed grid ceilings allow for access to the power supply without the use of access doors. Service at the equipment is simplified where there are removable ceiling tiles. Coordinate the layout of ceiling tile to insure that ceiling support system does not interfere with the camera support and bracket.

31 - Control Equipment Casework

31.071

Provide a minimum 3"(75) air and cable space at sides, top and rear of all computers and monitors.

64 - Cable Access Runs

64.261

Except as noted, all conduits, pull boxes and junction boxes shall be supplied, sized and located by the Customer.

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

64.304

Route the cable bundle connecting the Gating Camera to the rest of the Gating system overhead. When the Gating Camera is in use, it is installed on the CT table top. When not used it should be stored without disconnecting the interconnect cables. A solution for cable management is; a high quality curtain rail or similar device, (customer supplied).

64.305

The drawing detail shows the CT Simulator Respiratory Gating Camera support assembly stored on to a wall mount. The wall mount is provided with the Respiratory Gating Camera support assembly. The wall mount should be 8-1/2" (216) long , 2-1/2" (64) wide. Install the wall mount at 60" (1525) height.


69 - Power Receptacles / Switches

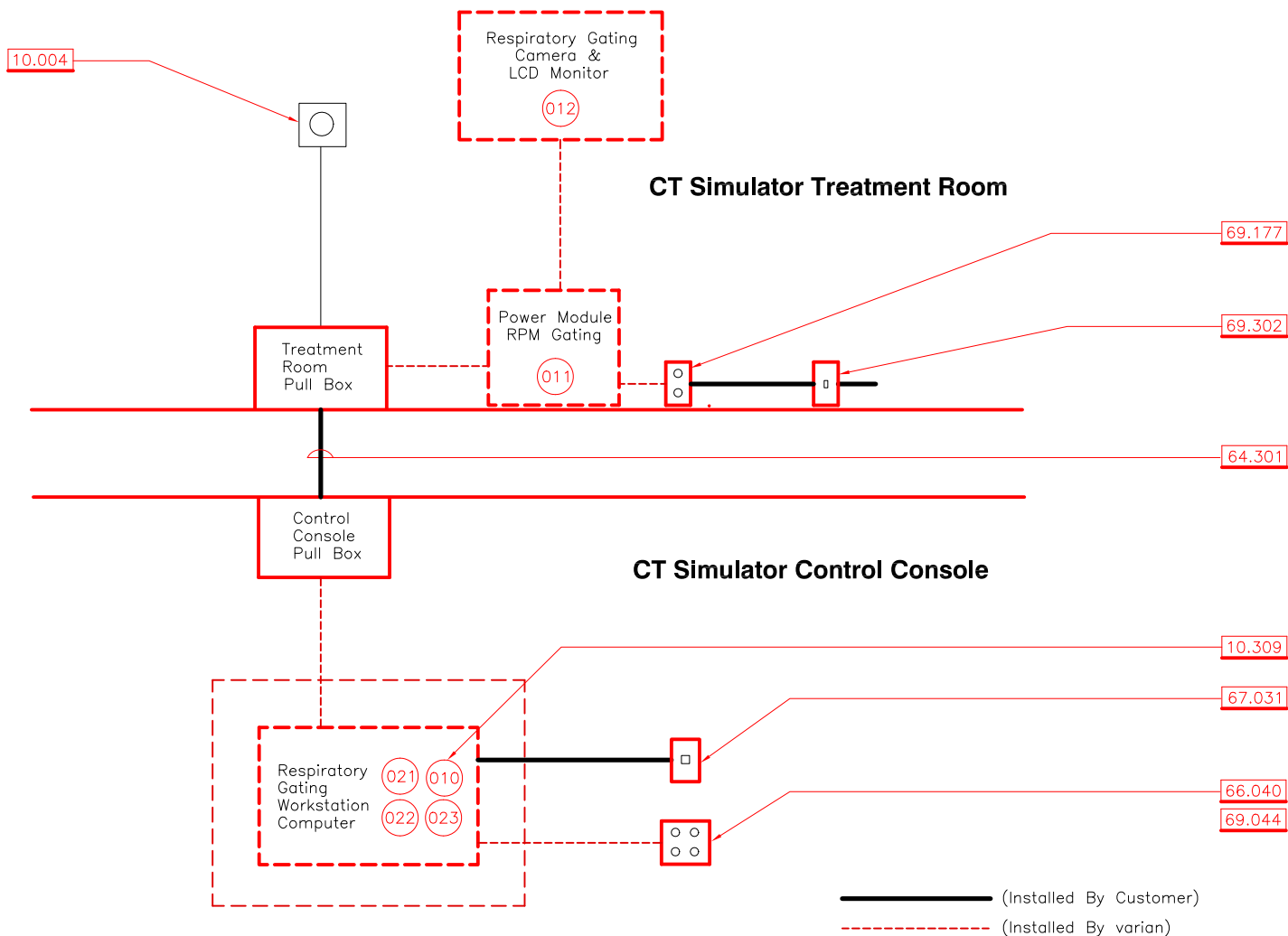
69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

69.302

Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Typical CT Simulator Room				
	Not For Construction					
G.5.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200005	page: G.5.1



Respiratory Gating Components							
Key	Equipment	Height inch (mm)	Width inch (mm)	Depth inch (mm)	Weight lb (kg)	Max Watts	Max dba
010	Respiratory Gating Interface Box	2.4 (61)	5.1 (130)	5.9 (150)	1 (0.5)	n/a	n/a
011	Power Module, RPM Gating	12 (305)	10 (254)	6 (152)	13.5 (6)	n/a	n/a
012	Respiratory Gating Camera & Brkt.	11.5 (292)	6 (152)	8 (203)	7 (3)	100	n/a
013	Respiratory Gating Camera & Brkt. (CT)	23 (584)	18.5 (470)	9.5 (241)	8 (3.6)	100	n/a
014	Respiratory Gating Switchbox Assembly	2.4 (61)	6.9 (175)	4.8 (122)	1 (0.5)	n/a	n/a
021	Workstation Keyboard	2 (51)	19 (483)	8 (203)	4 (2)	n/a	n/a
022	Workstation Computer	19 (483)	8 (203)	17 (432)	27 (12)	240	n/a
023	Workstation Monitor	20 (508)	22 (559)	4 (102)	18 (8)	n/a	25

10.124

IDP200009

	Refer to the Varian Components on this page.	Respiratory Gating Installation CT Simulator Interconnect Wiring				
	Not For Construction					
G.6.0 :page	planning dept.	© Varian Medical Systems 2004 All rights reserved.	24Jan08	revision: 3	doc. #: 200006	page: G.6.0

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

10.309

For CT scanner installations only, the customer shall provide the Respiratory Gating Interface Box to the CT scanner.

64 - Cable Access Runs

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

66 - Circuit Breakers / UVRs

66.040

Provide 20 amp at 120 Vac or 10 amp at 240 Vac dedicated circuit breakers for auxiliary equipment.

67 - Communications

67.031

Provide network cabling outlets at all server or workstation equipment locations. All network cabling must be in place and tested prior to equipment installation. Network patch panels, hubs and routers are typically located in a server room or closet.

69 - Power Receptacles / Switches

69.044


Provide a grounded 4 plex electrical power receptacle for Gating option components. Locate adjacent to the underside of the counter to provide maximum power cable extension room.

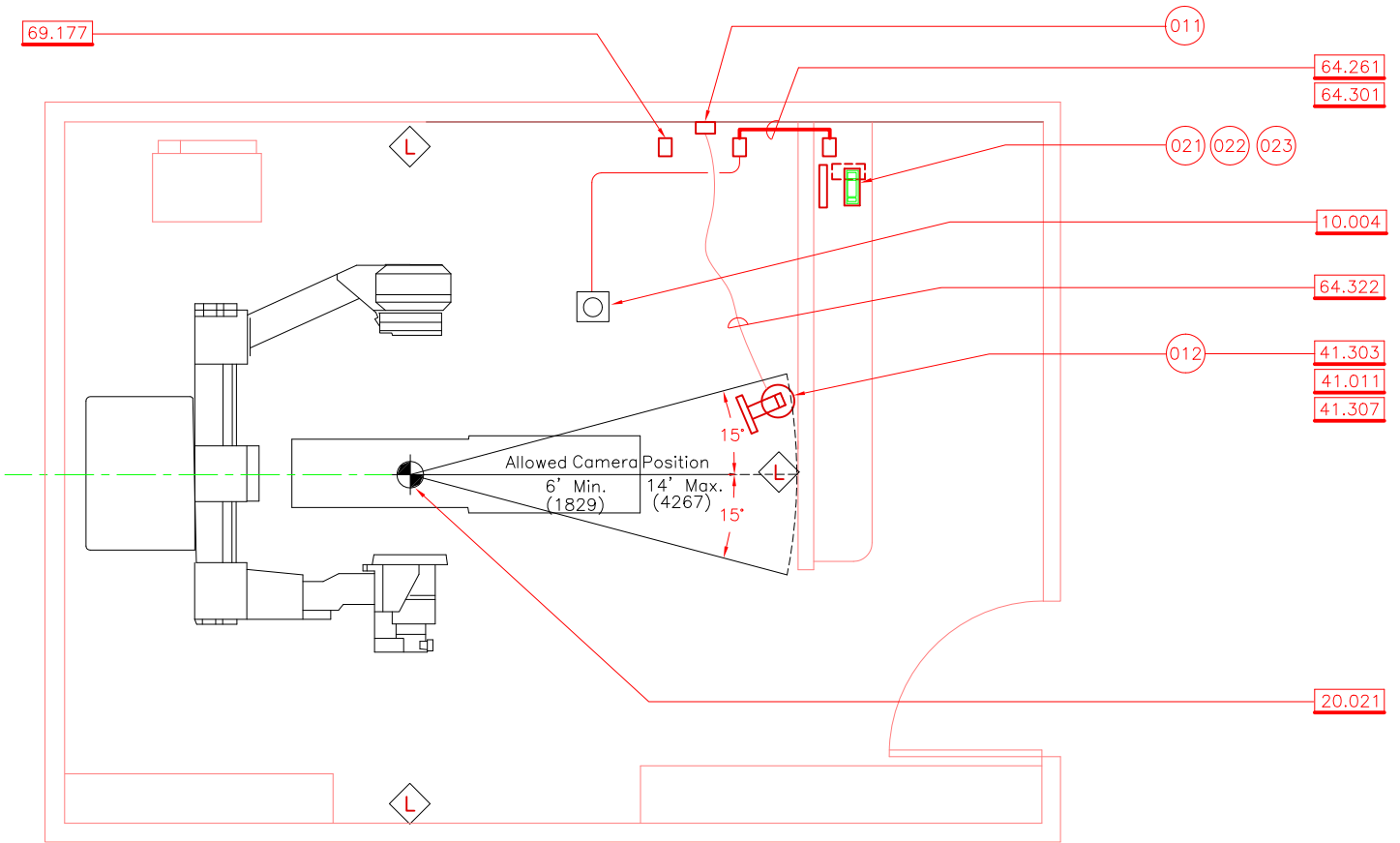
69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

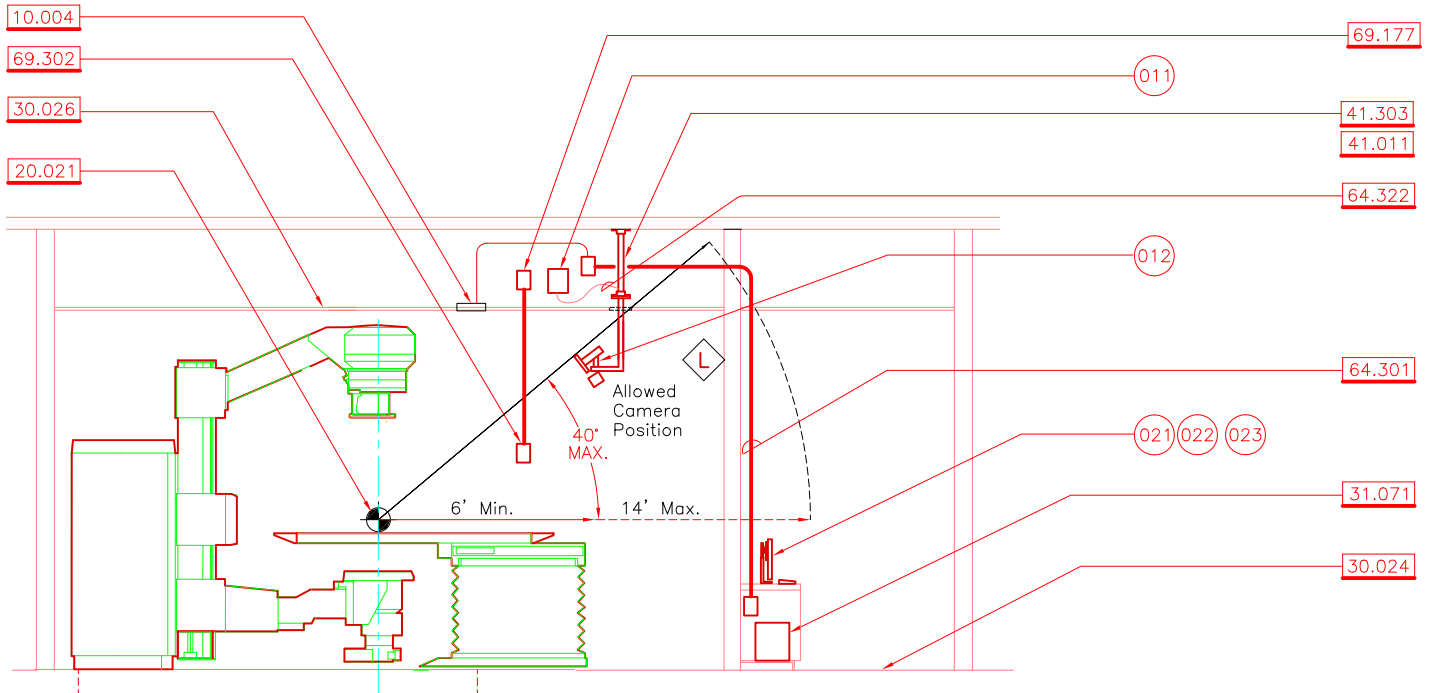
69.302

Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

	[000] Refer to the Varian Components Table.	Respiratory Gating Installation CT Simulator Interconnect Wiring				
	Not For Construction					
G.6.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200006	page: G.6.1



B Respiratory Gating Installation - Typical Ximatron Room Plan 10.124 NOT TO SCALE IDP200005



A Respiratory Gating Installation - Typical Ximatron Room Section 10.124 NOT TO SCALE IDP200004

		Respiratory Gating Installation Typical Ximatron Room				
	Not For Construction					
G.7.0 :page	planning dept.	© Varian Medical Systems 2004 All rights reserved.	24Jan08	revision: 3	doc. #: 200003	page: G.7.0

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

20 - General Layout Notes

20.021

Isocenter - This is the primary reference point for Varian equipment. Show the isocenter location clearly on all relevant drawings. Maintain the isocenter location on site by extending perpendicular axis lines along slab and up walls in all four directions. The isocenter heights for Varian systems fall within 4'-2" to 4'-4.5". (1267 to 1330) The installed Gating Camera location shall be the same location in the Simulator and Clinac treatment rooms.

If using gating with a Non-Varian machine, verify isocenter with specific vendor.

30 - Finishes

30.024

As with most computer components, the electronic components for this equipment are sensitive to localized static electricity. Carpeting or other flooring adjacent to the equipment in the room or at the control equipment area should not exceed a 2.0 kV rating at 20% relative humidity when measured as outlined by the methods in AATCC-134. Retrofit static dissipative coatings are also available from various manufacturers. Carpet, while otherwise advantageous, can make gurney movement difficult. Floor stains are common due to the use of dyes to mark reference points on patients. Many facilities use carpet squares that can be replaced or cleaned and allow access to floor duct if used.

30.026

Exposed grid ceilings allow for access to the power supply without the use of access doors. Service at the equipment is simplified where there are removable ceiling tiles. Coordinate the layout of ceiling tile to insure that ceiling support system does not interfere with the camera support and bracket.

31 - Control Equipment Casework

31.071

Provide a minimum 3"(75) air and cable space at sides, top and rear of all computers and monitors.

41 - Component Anchorage Brackets

41.011

If equipment is to be anchored to a wall or ceiling, provide appropriate structural backing. Camera mounting bracket (by Varian), bracket support (by Customer). Install per bracket manufacturer's instructions. Verify mounting height with local codes and other requirements described in the IDP for this product.

41.303

The Gating Camera can be mounted either from the ceiling or on the wall per the customers preference. The Installation Data Package (doc. #: 200007) contains mounting details for either option.

41.307

The Camera position in the Clinac treatment room should be as close as possible to the location of the camera in the Simulator room, to plus or minus 12". For use with CT simulators the camera in the Clinac room should be as close as possible to the center line of the couch.

64 - Cable Access Runs

64.261

Except as noted, all conduits, pull boxes and junction boxes shall be supplied, sized and located by the Customer.

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

64.322

If conduit is required, provide 1 1/2" (38) diameter conduit. The distance from the Power Module, RPM Gating to the Respiratory Gating Camera not to exceed 20'-0" (6096).

69 - Power Receptacles / Switches

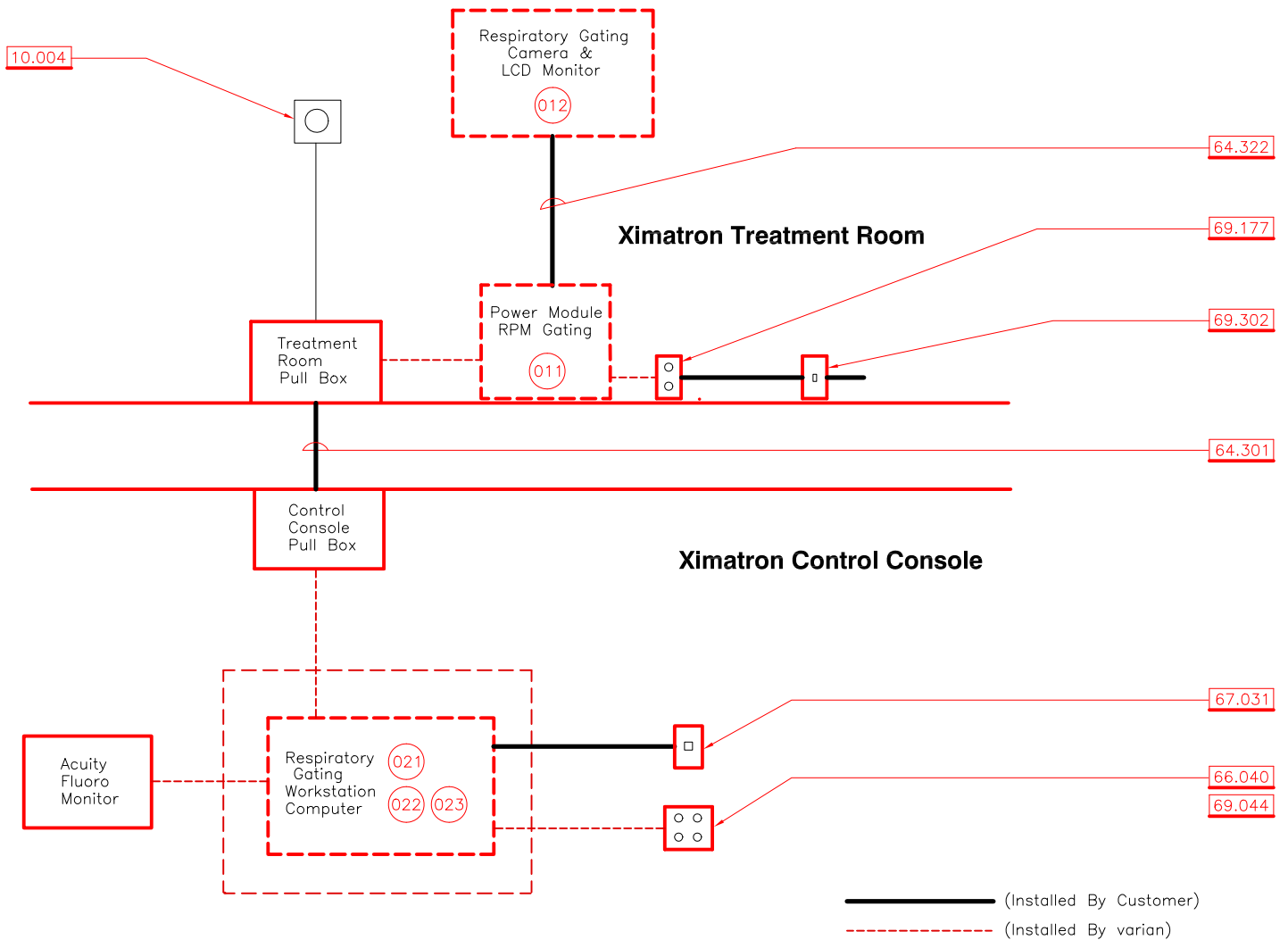
69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

69.302

Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

VARIAN medical systems	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Typical Ximatron Room				
	Not For Construction					
G.7.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200003	page: G.7.1



Respiratory Gating Components							
Key	Equipment	Height inch (mm)	Width inch (mm)	Depth inch (mm)	Weight lb (kg)	Max Watts	Max dBa
011	Power Module, RPM Gating	12 (305)	10 (254)	6 (152)	13.5 (6)	n/a	n/a
012	Respiratory Gating Camera & Brkt.	11.5 (292)	6 (152)	8 (203)	7 (3)	100	n/a
013	Respiratory Gating Camera & Brkt. (CT)	23 (584)	18.5 (470)	9.5 (241)	8 (3.6)	100	n/a
014	Respiratory Gating Switchbox Assembly	2.4 (61)	6.9 (175)	4.8 (122)	1 (0.5)	n/a	n/a
021	Workstation Keyboard	2 (51)	19 (483)	8 (203)	4 (2)	n/a	n/a
022	Workstation Computer	19 (483)	8 (203)	17 (432)	27 (12)	240	n/a
023	Workstation Monitor	20 (508)	22 (559)	4 (102)	18 (8)	n/a	25

10.124

IDP200006

VARIAN medical systems	(000) Refer to the Varian Components on this page.	Respiratory Gating Installation Ximatron Interconnect Wiring					
		Not For Construction					
G.8.0	:page planning dept.	© Varian Medical Systems 2004 All rights reserved.	24Jan08	revision: 3	doc. #: 200004	page: G.8.0	

10 - General Notes

10.004

Audio prompts are available on the output jack of the Gating Workstation (1/8" audio connector, 1 vrms full scale output voltage). The customer shall provide all wiring, amplification and speakers required to provide audio to the patient. The speaker wiring can be run to the treatment room pull box, to the control console pull box. The speaker should be mounted in close proximity to the treatment couch. (wall or ceiling mount)

10.124

The layouts shown on IDP drawings represent typical treatment room plans. Clearances and wall thicknesses vary.

64 - Cable Access Runs

64.301

Provide 1" (25) cable conduit with a standard computer signal cable outlet box from the Power Module, RPM Gating to the Gating Equipment Console, not to exceed 75'-0" (22,860) in length. This cable is provided by Varian and installed by the Customer.

64.322

If conduit is required, provide 1 1/2" (38) diameter conduit. The distance from the Power Module, RPM Gating to the Respiratory Gating Camera not to exceed 20'-0" (6096).

66 - Circuit Breakers / UVRs

66.040

Provide 20 amp at 120 Vac or 10 amp at 240 Vac dedicated circuit breakers for auxiliary equipment.

67 - Communications

67.031

Provide network cabling outlets at all server or workstation equipment locations. All network cabling must be in place and tested prior to equipment installation. Network patch panels, hubs and routers are typically located in a server room or closet.

69 - Power Receptacles / Switches

69.044


Provide a grounded 4 plex electrical power receptacle for Gating option components. Locate adjacent to the underside of the counter to provide maximum power cable extension room.

69.177

Provide a grounded 120V 60Hz (240V 50Hz) duplex power receptacle at the Power Module, RPM Gating (011). Locate within 12" (300) of the Power Module, RPM Gating.

69.302

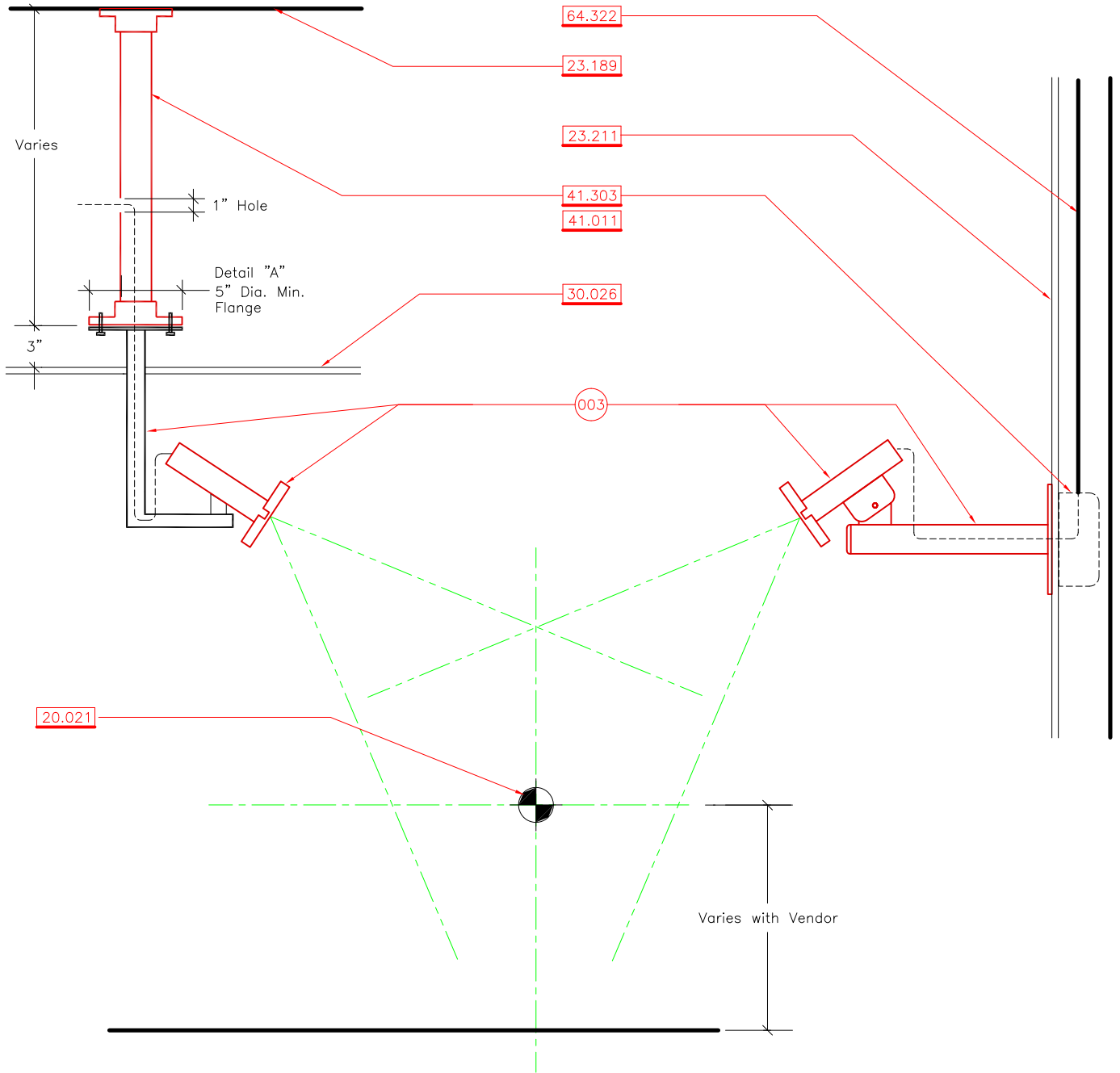
Provide a dedicated, standard wall switch for the Power Module, RPM Gating power outlet.

	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Ximatron Interconnect Wiring				
	Not For Construction					
G.8.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 3	doc. #: 200004	page: G.8.1

Ceiling Mount

OR

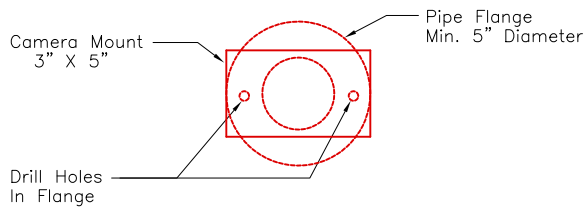
Wall Mount



20.021

003

Varies with Vendor



Detail "A"

N.T.S.

A Respiratory Gating Camera - Typical Mounting Installation for Clinacs, Acuity and Ximatrons

IDP200010

	000 Refer to the Varian Components chart at the end of this section.	Respiratory Gating Installation Camera Mounting Details				
	Not For Construction					
G.9.0 :page	planning dept.	© Varian Medical Systems 1999 All rights reserved.	24Jan08	revision: 2	doc. #: 200007	page: G.9.0

20 - General Layout Notes

20.021

Isocenter - This is the primary reference point for Varian equipment. Show the isocenter location clearly on all relevant drawings. Maintain the isocenter location on site by extending perpendicular axis lines along slab and up walls in all four directions. The isocenter heights for Varian systems fall within 4'-2" to 4'-4.5". (1267 to 1330) The installed Gating Camera location shall be the same location in the Simulator and Clinac treatment rooms.

If using gating with a Non-Varian machine, verify isocenter with specific vendor.

23 - Dimension Descriptions

23.189

This is the line of the shielding barrier.

23.211

This is the recommended dimension to concrete. Recommended face of concrete dimensions assume up to 6"(150) of wall furring.

30 - Finishes

30.026

Exposed grid ceilings allow for access to the power supply without the use of access doors. Service at the equipment is simplified where there are removable ceiling tiles. Coordinate the layout of ceiling tile to insure that ceiling support system does not interfere with the camera support and bracket.

41 - Component Anchorage Brackets

41.011

If equipment is to be anchored to a wall or ceiling, provide appropriate structural backing. Camera mounting bracket (by Varian), bracket support (by Customer). Install per bracket manufacturer's instructions. Verify mounting height with local codes and other requirements described in the IDP for this product.


41.303

The Gating Camera can be mounted either from the ceiling or on the wall per the customers preference. The Installation Data Package (doc. #: 200007) contains mounting details for either option.

64 - Cable Access Runs

64.322

If conduit is required, provide 1 1/2" (38) diameter conduit. The distance from the Power Module, RPM Gating to the Respiratory Gating Camera not to exceed 20'-0" (6096).

	[000] Refer to the Varian Components Table.	Respiratory Gating Installation Camera Mounting Details				
	Not For Construction					
G.9.1 :page	planning dept.	© Varian Medical Systems 2001 All rights reserved	24Jan08	revision: 2	doc. #: 200007	page: G.9.1

Respiratory Gating Pre-Installation Checklist

In accordance with current Varian "Standard Terms and Conditions of Sale" RAD 1652, para. 15 16, the following are the minimum facility requirements to be accomplished before the shipment of your System can begin. Request for any exceptions should be referred to your Varian Regional Installation Coordinator. The Customer is responsible for having the building, utilities, lighting, ventilation, air conditioning, mounting facilities, all necessary radiation shielding, and access to the room completed by the day of final inspection. If delays in completion delay installation, the Customer shall reimburse Varian at Varian's standard service rates for any extra time and /or travel by Varian made necessary by the delay. I have explained these requirements to the Customer on this date along with the specific requirements listed below.

Site: _____ Equipment Type: _____ SN: _____ Date: _____

Y N ARCHITECTURAL REQUIREMENTS

- 1. Installation drawings reviewed by Varian
- 2. All required permits complete

GENERAL RPM GATING REQUIREMENTS (ALL SYSTEMS)

- 3. Adequate Console space provided for RPM WS & Monitor for each RPM system (Clinac, SIM, CT)
- 4. Console area(s) finished and ready for installation
- 5. RPM installation areas sealed from construction dust particles
- 6. Network port provided in each Console area near RPM WS
- 7. Duplex AC outlet provided within 4'-0" (1200) of RPM Power Module box mounting location and dedicated power switch provided for each RPM system room
- 8. Nearby operational film processor available for use
- 9. Qualified physicist available for CAP testing (approx. 4 hrs per installed unit)
- 10. Storage space available for shipment receipt (10 sq. ft)
- 11. Provisions made for removal of shipping crates, boxes and packing material
- 12. Stereo Speakers wired and installed for each RPM system (customer option and responsibility)
- 13. If existing RPM Gating systems are installed, software versions are listed in the Notes (for possible upgrades)
- 14. Telephone available in Clinac Console area

CLINAC REQUIREMENTS IF SECTION IS N/A

- 15. Conduit - 1" (25) with standard signal cable outlet boxes provided from Console RPM computer area to RPM Power Module box, not to exceed 75'-0" (22,860)
- 16. Conduit - 1.5" (37) with standard signal cable outlet boxes provided from RPM Power Module box to RPM Gating Camera, not to exceed 20'-0" (6096)
- 17. RPM Camera/LCD Monitor mounting bracket firmly installed over conduit box opening
- 18. Distance from Camera mounting bracket to Clinac Isocenter is ≤14'-0" (4200)
- 19. RPM Power Module box installed in Treatment room

Y N SIMULATOR REQUIREMENTS IF SECTION IS N/A

- 20. Conduit - 1" (25) with standard signal cable outlet boxes provided from Console RPM computer area to RPM Power Module box, not to exceed 75'-0" (22,860)
- 21. Conduit - 1.5" (37) with standard signal cable outlet boxes provided from RPM Power Module box to RPM Gating Camera, not to exceed 20'-0" (6096)
- 22. RPM Camera/LCD Monitor mounting bracket firmly installed over conduit box opening in Simulator room
- 23. Distance from Camera mounting bracket to Clinac Isocenter is ≤14'-0" (4200)
- 24. List Customer's Simulator Fluoro Video Standard: _____
- 25. RPM Power Module box installed in Simulator room
- 26. 3rd Party Simulators: required RPM interface cables and modules are properly installed locations or customer has arranged installation by vendor

CT SIMULATOR REQUIREMENTS IF SECTION IS N/A

- 27. List manufacturer & model of CT Simulator in Notes below
- 28. Conduit - 1" (25) with standard signal cable outlet boxes provided from Console RPM computer area to RPM Power Module box, not to exceed 75'-0" (22,860)
- 29. Conduit - 1.5" (37) with standard signal cable outlet boxes provided from RPM Power Module box to 'curtain rail' location, not to exceed 20'-0" (6096)
- 30. Cables routed through ceiling and to the base of the CT Simulator Gantry (if required)
- 31. Couch Camera bracket available and couch is 'ready' to attach bracket
- 32. Camera storage mounting bracket installed on wall (customer responsibility)
- 33. "Curtain rail" or cable take-up mechanism provided and installed for Camera cable (customer responsibility)
- 34. RPM Power Module box installed in Simulator room
- 35. Required RPM interface cables and modules are properly installed or customer has arranged installation by vendor

Notes: _____

Project Manager Signature: _____

Varian Representative

Customer Representative

Final Inspection Date