

Customer memo

From: The Planning Department
Date: June 5, 1999
Subject: Room Requirements for Replacement Equipment

Clinac® 4 or 6X to Clinac® 4/100, 6/100 or 600C

- Replace the 50amp main electrical breaker with a 70amp breaker.
- The electrical supply must be upgraded from the usual 10 kVA to 15 kVA.
- Most sites have two 2"(50mm) conduits from the control console pull box to the base frame pull box. Add conduits or floor duct to the equivalent of three 4"(100mm) conduits.
- Due to changes in radiation shielding regulations, all sites should be reviewed for the adequacy of existing shielding barriers, even when the maximum photon energy is not changing.
- The vault air heat load will increase from 4kW to 5kW. Many existing sites were designed for 5 kW. A 1 kW difference can usually be accommodated by an existing system, but it could be a problem if the current system is marginal.
- A new base frame would be needed unless the existing Clinac is a rebuilt machine (4R, 6XR) or was installed after 1981. At one time, a special order Clinac 6/100 could be installed on an old Clinac 4 base frame. This involved a special order non-motorized PSA couch turntable (9 - 12 month lead time) and a base frame stiffener kit which required chipping concrete away from the base frame and welding plates to sides and top. By the time the work was done to reinforce the frame, a new one could have been installed.
- The pit has increased in length, width and depth. The Planning department has a drawing detailing the new pit dimensions.
- The existing console area is typically too small, especially for C-Series upgrades, which require space for several computers, a shelf for monitors and a 38"(965mm) deep counter. Also, additional electrical outlets and network nodes may be required.
- C-Series upgrades require an additional relay in the relay junction box.
- Since the isocenter height changes, the side lasers must be raised.
- The maximum couch arc clearance increases from 8'-2" to 9'-1" for ETR couches. Exact couches require 9'-6" clearance.
- If the ETR couch option is being added for a Non-C-Series Clinac in a room without an existing ETR Electronics Cabinet, the ETR pull box and two conduits or equivalent floor duct to the base frame pull box must be added.



Clinac® 12/10, 18 or 20 to Clinac® 1800, 2100C, 2100C/D or 2300C/D

- Replace the 100 amp main electrical breaker with a 150-amp breaker (some of the later Clinac 18s were installed with the 125-amp breaker).
- The electrical supply must be upgraded from the usual 40 kVA to 45 kVA.
- If installed per the IDP, the conduits are tight, but adequate (order all cables at the time of installation for future EPI, MLC, etc.).
- Due to changes in radiation shielding regulations, all sites should be reviewed for the adequacy of existing shielding barriers, even when the maximum photon energy is not changing. Of particular concern are sites where a high energy Clinac is being placed in a vault that has existing or requires additional steel or lead shielding near the outside surface of a shielding barrier. These situations can produce severe shielding constraints on a site.
- The existing base frame can be used with modification by Customer Support before Clinac installation.
- The existing console area is typically too small, especially for C-Series upgrades, which require space for several computers, a shelf for monitors and a 38"(965mm) deep counter. Also, additional electrical outlets and network nodes may be required.
- C-Series upgrades require an additional relay in the relay junction box.
- The maximum couch arc clearance increases from 8'-2" to 9'-1" for ETR couches. Exact couches require 9'-6" clearance.
- If the ETR couch option is being added for a Non-C-Series Clinac in a room without an existing ETR Electronics Cabinet, the ETR pull box, one 4"(100mm) and one 2"(50mm) conduit or equivalent floor duct to the base frame pull box must be added.

Ximatron® 5 to Ximatron® Series

It's a completely different machine. There is little to salvage for this type of replacement, so the room should be treated as if a change of usage is occurring.

Ximatron® -CX to Ximatron®-EX

- Ximatron upgrade - "steel plate base" can be upgraded to an Exact Couch without replacing the steel base plate. Verify the existence of a motorized turntable option on Ximatron–CX models.
- Existing floor duct or conduits are sufficient for new cabling.
- Main Power Requirements:

*MicroX75 generator to CPI HF50 – 3-phase, 480volt, 70amp, 100kVA
This should be the existing power and no change is required.

* MicroX75 generator to CPI HF80 – power requires upgrading to: 3-phase, 480volt, 100amp, 120kVA