Radiation is the excessive energy that is carried through the rapid particles or electromagnetic waves that natural or artificial radioactive cores release in order to pass through the determined state. Ionizer radiation might form charged particles (ion) on the substance it hits. Ionization might occur in any substance interacting with radiation as well as it might in the bodies of all living things, including humans. In the world to fulfill the needs of medicine, scientific research, energy, agriculture and industry more than three thousand nuclear facilities have been used in addition to these radiation beams are used for the purpose of treatment and diagnosis in the medical centers. As far as it is impossible to avoid radioactive rays, protective measures should be taken to reduce the harmful effects of radiation. Radiation can shred or damage the cell depending upon the radiation exposure time, severity and exposed parts of body. To be protected from the harmful effects of radiation time, distance and armor rules must be observed. Shielding process is placing appropriate barriers between the radiation source and person with the aim of reducing the radiation to an acceptable level. The higher the density of the materials used the more shield-effect increases. The factors of choosing the shield material are type of radiation source, energy level, bigger atomic number of material and containing hydrogen ion in the structure of material. Heavy concrete used as shield material which is produced from heavy aggregates including both hydrogen ion and higher density makes it inevitable to use as a shield material. On the design of the shield thickness, the properties of places that are to be armored are also important. The shield thickness of the shield materials is determined according to the energy range of the material. Calculation of armor requires special expertise. In this study wall thickness calculation on different energy ranges has been made for the normal and barite aggregate concrete that is needed for armoring process. Both radiations holding properties of barite aggregate concrete are better and its wall thickness is smaller makes barite aggregate concrete superior on armoring process, thus it enables more healthy, economical and thin-section structures to be built.