Nomor Urut :

Laporan Tugas Akhir

PERANCANGAN SISTEM PLAMBING GEDUNG PROGRAM STUDI DI LUAR KAMPUS UTAMA (PSDKU) PEKALONGAN UNIVERSITAS DIPONEGORO

Disusun Oleh:

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FAKULTAS TEKNIK

UNIVERSITAS DIPONEGORO

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HALAMAN PENGESEHAN

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***RE-DESIGN* SISTEM PLAMBING GEDUNG B PROGRAM STUDI DI LUAR KAMPUS UTAMA (PSDKU) UNIVERSITAS DIPONEGORO DI KABUPATEN PEKALONGAN**

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ABSTRAK

Gedung B PSDKU Universitas Diponegoro adalah gedung perkuliahan yang diperuntukkan untuk program studi D3 Akuntasi dan D3 PWK. Dalam pembangunan gedung harus sistem plambing yang memadahi serta memperhatikan aspek konservasi air yang menjadi salah satu aspek dalam penerapan *green building.* Kondisi sistem plambing pada gedung ini belum menerapkan konsep *green building* sehingga perlu dilakukannya *re-design* sistem plambing. Tujuan dari perancangan ini yaitu melakukan evalusi dan *re-design* sistem plambing dengan penerapan *green* building mencakup penyediaan air bersih, penyaluran air buangan, pemadam kebakaran, penyaluran air hujan serta membuat perancangan air daur ulang. Perhitungan dalam melakukan *re-design* didasarkan pada ketentuan yang berlaku. Dalam rangka memenuhi aspek konservasi air berdasarkan konsep *green building,* maka *re-design* dilakukan dengan mempertimbangkan konservasi air. Berdasarkan jumlah penghuni gedung 411 orang, jumlah kebutuhan air diperkirakan sebesar 32.88 m^3/hari. Sistem penyaluran air buangan terbagi menjadi dua yaitu penyaluran *grey water* menuju unit pengolahan yang selanjutnya dipergunakan sebagai air daur ulang dan *black water* menuju ke biotank kapasitas 12 m^3. Sistem penyaluran air daur ulang menyalurkan air hasil olahan *grey water* dengan jumlah 4.32 m^3/hari yang diolah pada unit biofilter dengan kapasitas 5 m^3 yang selanjutnya digunakan untuk *flushing toilet*. Selain menerapkan *water recycling*, konservasi air juga dilakukan dengan pembuatan sumur resapan berjumlah 6 sumur yang meresapkan air hujan kedalam tanah untuk mengembalikan air tanah.

Kata Kunci : Sistem Plambing, *Green Building, Konservasi Air*

ABSTRACT

Building B of PSDKU Diponegoro University in Pekalongan Regency is a lecture building dedicated to D3 Accounting and D3 PWK study programs. In building construction, a plumbing system must be adequate and pay attention to the aspect of water conservation which is one of the aspects in implementing green building. The plumbing system condition in this building has not implemented the green building concept so it is necessary to re-design the plumbing system. The purpose of this design is to evaluate and re-design the plumbing system with the application of green buildings including clean water supply, wastewater distribution, fire extinguishing, rainwater distribution, and designing recycled water. The calculation in conducting a re-design is based on the applicable provisions. To fulfill the water conservation aspects based on the green building concept, then the re-design is carried out by considering water conservation. Based on the number of occupants of the building 411 people, the total water demand is estimated at 32.88 m3 / day. The wastewater distribution system is divided into two, namely the distribution of greywater to the processing unit which is then used as recycled water, and black water to the biotank with a capacity of 12 m3. The recycled water distribution system distributes processed greywater with an amount of 4.32 m3 / day which is treated in a biofilter unit with a capacity of 5 m3 which is then used for flushing toilets. In addition to implementing water recycling, water conservation is also carried out by constructing 6 infiltration wells that infiltrated rainwater into the ground to restore groundwater. the amount of water demand is estimated at 32.88 m3/day. The waste water distribution system is divided into two, namely the distribution of gray water to the processing unit which is then used as recycled water, and black water to the biotank with a capacity of 12 m3. The recycled water distribution system distributes processed gray water with an amount of 4.32 m3 / day which is treated in a biofilter unit with a capacity of 5 m3 which is then used for flushing toilets. In addition to implementing water recycling, water conservation is also carried out by constructing 6 infiltration wells that infiltrate rainwater into the ground to restore groundwater. the amount of water demand is estimated at 32.88 m3 / day. The wastewater distribution system is divided into two, namely the distribution of gray water to the processing unit which is then used as recycled water, and black water to the biotank with a capacity of 12 m3. The recycled water distribution system distributes processed gray water with an amount of 4.32 m3 / day which is treated in a biofilter unit with a capacity of 5 m3 which is then used for flushing toilets. In addition to implementing water recycling, water conservation is also carried out by constructing 6 infiltration wells that infiltrate rainwater into the ground to restore groundwater.

Keywords : *Plumbing System, Green Building, Water Conservation*