DESIGN OF FLOOD CONTROL PUMP USING AXIAL FLOW PUMP FOR RESIDENTIAL AREA
(STUDY CASE AT PRAPEN RESIDENTIAL SURABAYA)

Nama Mahasiswa : Erfa Fatoni Dwi Putra
NRP : 2106100142
Jurusan : Teknik Mesin
Dosen Pembimbing : Prof. Dr. Ir. I Made Arya Djoni, MSc

Abstract

Today floods become an usual tragedy for urban society. Less of diffusion area and poor drainage system became a major causal factor of the problem. At Prapen residential with 149,06 ha areas, floods was occur because sewer is not able to channel rain water. Therefore required some alternative to resolve the issue. And one of the alternative which can be choosen is by installing axial flow pump because this pump can produce large capacities.

This pump will be designed with the pump capacity adjusted to the capacity of the water flowing in the soil surface. Having determined the capacity of the pump, next is determined head of the pump, power required by pump and motor rotation. Then the next step is to design the impeller of pump using airfoil profil and the other parts such as shaft, bearings, and pins.

From this design is gotten the design of singlestage flood control pump with 0.5 m³/s of capacity and 2.95 m head. Impeller pump was design using airfoil profile type NACA 23012, number of impeller blades is 3 and impeller diameter is 0.38 m.

Keywords: flood, axial flow pump, residential, impeller, NACA 23012.