Minutes of Meeting

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1 Aim

- To discuss & understand the requirement of CFD analysis
- To update the progress on the geometry idealisation and analysis setup

1.1 Meeting

- Air flows from the entry of the pipe $320\,m^3/hr$, there are 32 diffusers connected to the main pipe, analysis on the grid to be performed, considering the resistance of each diffuser (data will be shared). When water level varies from 1 to 5 m ($\Delta = 1m$), is there uniform flow distribution or non-uniform distribution across the grid? pressure drop due the 90° bend and pressure resistance across each set of diffuser has to considered.
-Pressure drop for the diffuser sets & dimensions of the pipe will be shared.
-The air flow from the blower is VFD driven, at low head - presssure drops - the speed decreases. As the water level increase, the pressure & speed increase.
- Combination of diffuser with varying resistance is assembled ex, $\Delta P_1, \Delta P_2, ...\Delta P_n$, by varying the height of the water, flow is uniform or non-uniform has to be observed. and at what pressure the uniform flow can be achieved? The combination of diffuser will be shared.
- Challenges faced due large computional domain and large cell count due to meshing at the membrane was discussed. geometry idealisation and clean-up was updated.
-To reduce the cell count, the membrane to be modelled as *porous zone* from the shared empirical data was discussed.