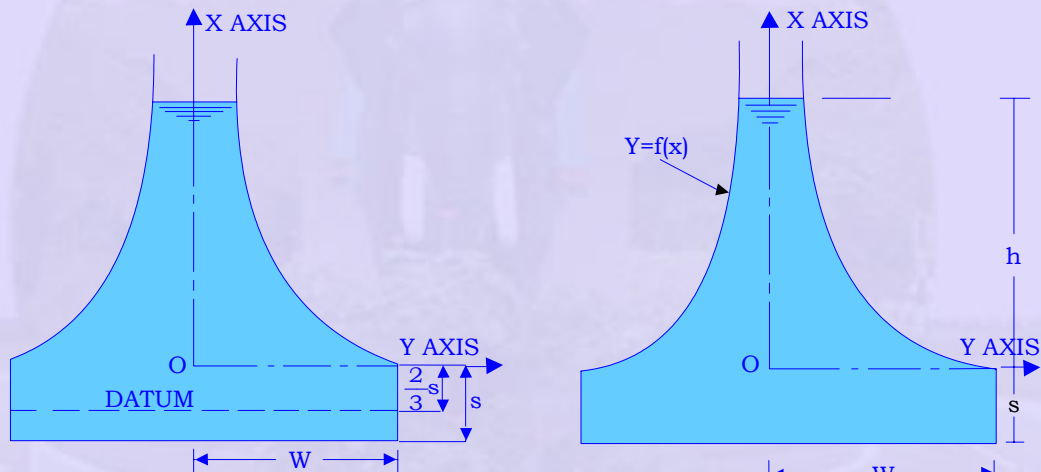


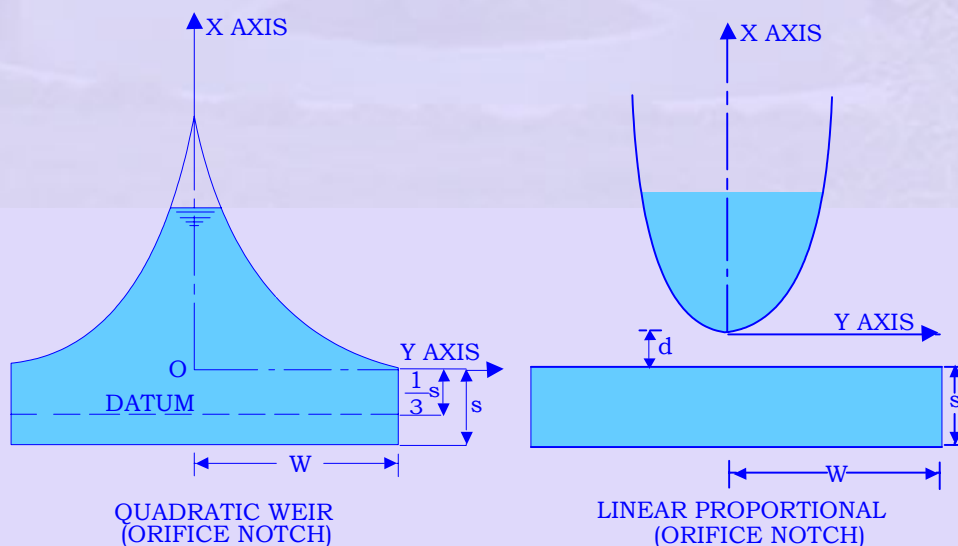
14.3 Proportional Weirs

'Proportional Weirs' are weir shapes designed to achieve a particular head-discharge or head-velocity relationship. These weirs find application in the fields of Hydraulic Engineering, Sanitary Engineering and Chemical Engineering. The study of Proportional weirs started with the development of 'Sutroweir', which is a linear proportional notch. For complete literature on this subject, the works of Kolupaila and Keshavamurthy may be consulted. A general method of designing a weir notch having a base in any given shape to a depth a , such that the discharge through it is proportional to any singular monotonically-increasing function of the depth of flow measured above a datum was proposed by Keshavamurthy and Seshagiri. Some typical examples of [proportional weirs](#) are shown here discussed elsewhere.



LINEAR PROPORTIONAL WEIR (SUTRO WEIR)

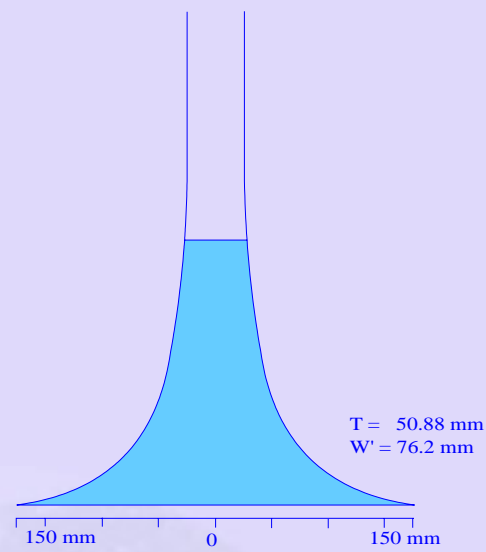
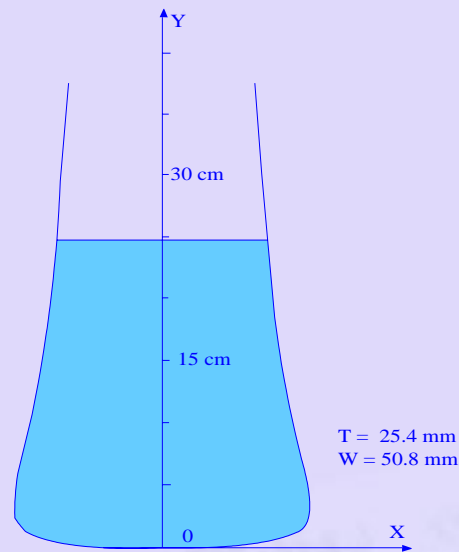
LOGARITHMIC WEIR



QUADRATIC WEIR
(ORIFICE NOTCH)

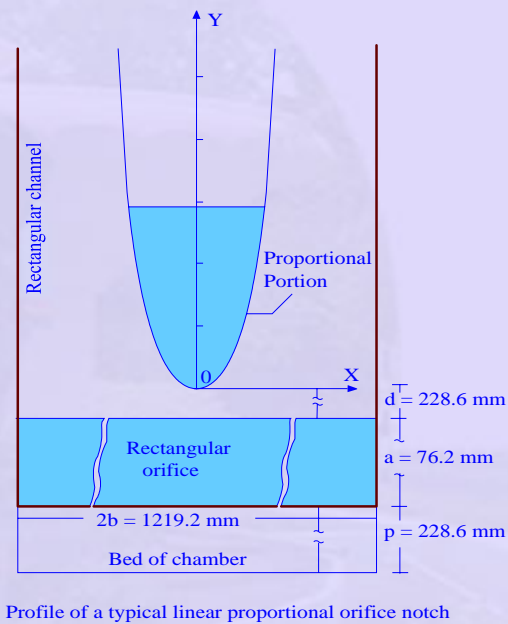
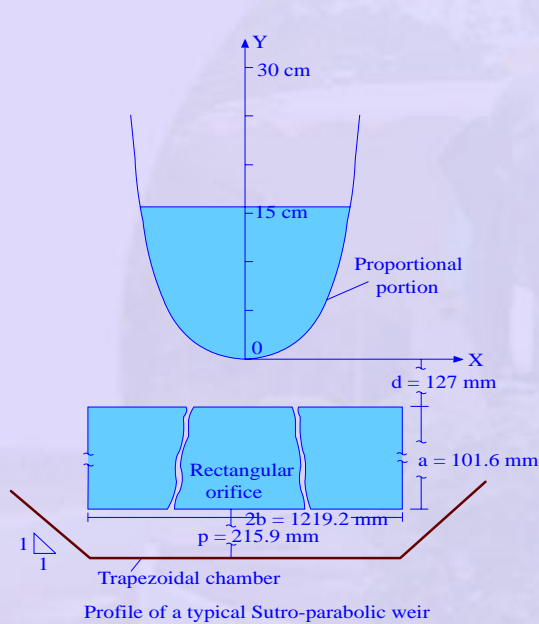
LINEAR PROPORTIONAL
(ORIFICE NOTCH)

Some examples of Proportional Weirs



Profile of a typical baseless weir (NBW-1)

Profile of a typical baseless weir (NBW-2)



References:

1. Keshava Murthy K, "A Generalized Mathematical Theory of Proportional Weirs, PhD Thesis, Department of Civil and Hydraulic Engineering, Indian Institute of Science, Bangalore, 1968.
2. Keshava Murthy K, and Seshagiri N, "A Generalized Mathematical Theory and experimental verification of Proportional notches", Journal of the Franklin Institute, Volume 285, Number 5, May 1968, Page 347 - 363.