



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

**BUREAU OF INDIAN STANDARDS**

(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

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## DRAFT INDIAN STANDARD IN WIDE CIRCULATION

Reference : WRD 09/T-02

Date : 18 September 2024

TECHNICAL COMMITTEE : Dams and Spillways, WRD 09

To,

All concerned

Dear Madam/Sir,

The following document has been prepared by the Dams and Spillways Sectional Committee, WRD 09. Please [click here](#) to view the document.

**Document Number : WRD 09 (26589) WC**

**Title of the document : Criteria for Design of Hydraulic Jump Type Stilling Basins with Horizontal and Sloping Apron**

**Document Type : Revision of Indian Standard (IS 4997 : 1968)**

*This document has following salient features which may require specific attention for your valuable comments:*

- 1) The design of downstream protection works or energy dissipators below hydraulic structures occupies a vital place in the design and construction of dams, weirs and barrages. The problem of designing energy dissipators is one essentially of reducing the high-velocity flow to a velocity low enough to minimize erosion of the natural river bed.*
- 2) The design criteria recommended in this standard is meant for stilling basins of rectangular cross-section with horizontal and sloping apron. The criteria given in this standard would hold, provided that the jet entering the basin is reasonably uniform with regard to both velocity and depth. Though the criteria are applicable for all cases, yet for falls greater than 15 m, discharge intensities greater than 30 m<sup>3</sup>/s/m and possible asymmetry of flow, the specific design should be tested on model.*
- 3) Stilling basins are the most common types of energy dissipators provided at the toe of spillways if tail water levels are favourable for formation of hydraulic jump. The first revision of this standard incorporates the latest generalised design trends in vogue emphasizing the operational aspects of stilling basin. It is strongly recommended that the hydraulic design of stilling basin should be optimized functionally and economically from the physical model studies as the flow within hydraulic jump is an extremely complicated and rapidly varied flow, characterized by the development of large-scale turbulence, surface waves and spray, energy dissipation and air entrainment.*
- 4) The major concern with the stilling basin type dissipator is more of structural strength rather than its hydraulic efficiency. Experiences had shown many examples of stilling basins suffering serious damages due to uplift, vibration, cavitation, and abrasion, all having their origin in the internal structure of hydraulic jump. The other relevant factors like determination of thickness of concrete floor of stilling basin, divide walls etc. have been covered in other standards pertaining to the structural designs of spillways.*

Please examine the document and share your comments regarding further improvement in the document.

**Last date for sharing the comments is : 17 November 2024**

The comments should be shared in the prescribed template through this portal only; and the comments so received shall be taken up by the Sectional Committee for necessary action. For any other query, please write an email at wrd@bis.gov.in to the undersigned at Bureau of Indian Standard, Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi.

In case no comments are received, we would presume your approval of the documents. However, in case we receive any comments on the document, the same shall be put up to the Sectional Committee for necessary action.

Thanking You,

**Yours faithfully,  
(DUSHYANT PRAJAPATI)  
Head (Water Resources Department)  
Email: wrd@bis.gov.in**



## व्यापक परिचालन में मसौदा(दे)

हमारा सन्दर्भ : WRD 09/T-02

दिनांक : 18-09-2024

तकनीकी समिति : Dams and Spillways Sectional Committee, WRD 09

प्राप्तकर्ता : रूचि रखने वाले सभी निकाय

महोदय/या,

निम्नलिखित मसौदा तैयार किया गया है :

प्रलेख संख्या : WRD 09 (26589) WC

शीर्षक :

कृपया इस/इन मानक(को)/संशोधन(नो) के मसौदे(दो) का अवलोकन करें और अपनी सम्मतियाँ यह बताते हुए भेजें कि यदि ये मानक(को) के संशोधन(नो) के रूप में प्रकाशित हो तो इन पर अमल करने में आपके व्यवसाय अथवा कारोबार में क्या कठिनाइयां आ सकती हैं।

सम्मतियाँ भेजने की अंतिम तिथि : 17 November 2024

सम्मतियाँ, यदि कोई हों तो, कृपया यहाँ क्लिक करके ऑनलाइन पोर्टल के माध्यम से ऊपर दी गयी अंतिम तिथि तक दर्ज कराएं।

यह/ये प्रलेख भारतीय मानक ब्यूरो की वेबसाइट [www.bis.gov.in](http://www.bis.gov.in) पर भी उपलब्ध है/हैं।

धन्यवाद।

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