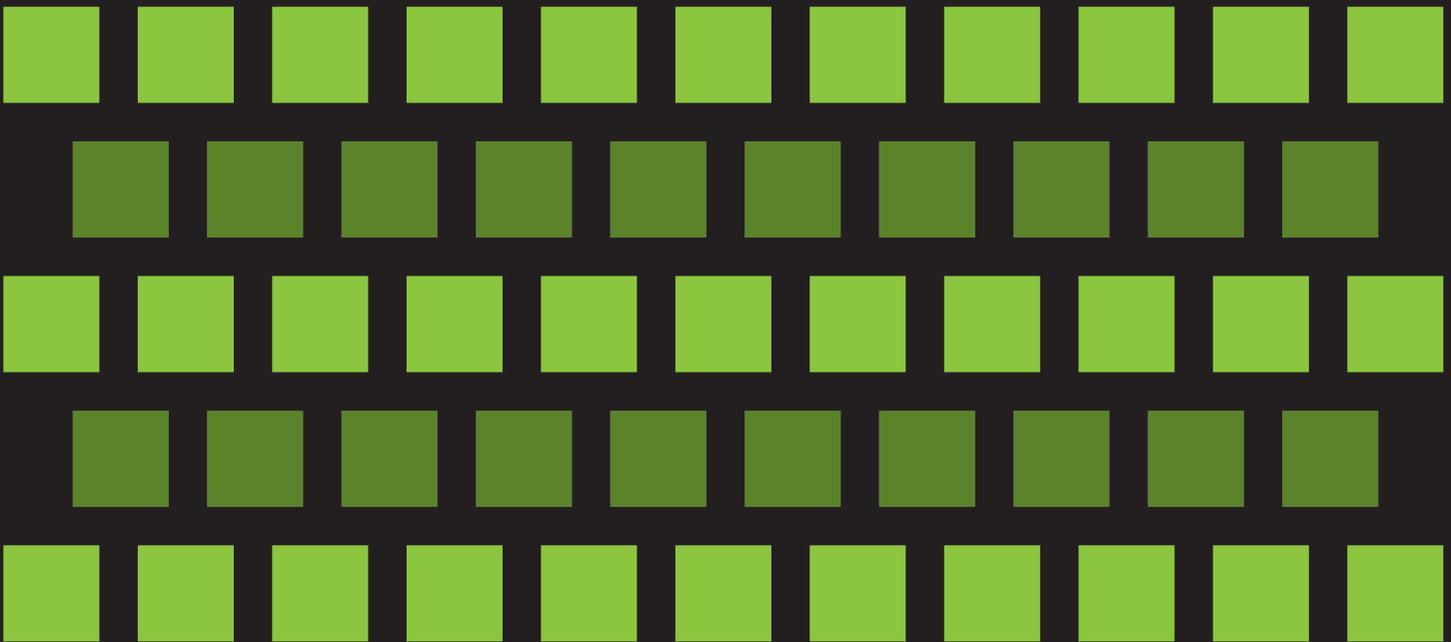


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COMPARISON OF PRESSURE VESSEL CODES ASME SECTION VIII AND EN13445

Technical, Commercial, and Usage Comparison
Design Fatigue Life Comparison



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FOREWORD

This report presents two papers presented during the 2006 ASME Pressure Vessels and Piping Division Conference held July 23-27, 2006, in Vancouver, BC, Canada. The papers have also been published by ASME along with the Proceedings of PVP2006-ICPVT-11. The papers resulted from projects sponsored by ASME in response to the “Comparative Study on Pressure Equipment Standards”, published in June 2004 by the European Commission, Enterprise Directorate-General.

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ABSTRACT

Part I of this report includes paper PVP2006-ICPVT11-94010, "Comparison of Pressure Vessel Codes ASME Section VIII and EN13445." This paper consists of a comparative study of the primary technical, commercial, and usage differences between the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section VIII and the European Pressure Vessel Code EN13445 (EN). This study includes a review of "Comparative Study on Pressure Equipment Standards" published by the European Commission (EC) and provides technical comparisons between the code design requirements, material properties, fabrication, and contributing effects on overall cost. This study is intended to provide a broad viewpoint on the major differences and factors to consider when choosing the most appropriate vessel design code to use.

Part II of this report includes paper PVP2006-ICPVT11-93059, "Design Fatigue Life Comparison of ASME Section VIII and EN 13445 Vessels with Welded Joints." The "Comparative Study on Pressure Equipment Standards" performed by the EC included a comparison of design fatigue life of welded vessels allowed by the ASME Boiler and Pressure Vessel Code (B&PVC) Section VIII with that of the European Standard EN 13445. The allowable number cycles of the ASME Code was reported to be much larger than that of EN 13445, and, therefore, the ASME Code was regarded as unconservative for welded regions. This paper investigates the reason for the reported discrepancy between the two design codes, identifies errors in the EC calculation, recalculates the allowable cycles according to ASME Code rules and concludes that they are comparable with those of EN 13445.