

**Nippon Steel's "Hat + H" Construction Method**  
**Adopted for Building Harbor Facilities in Guam**

**Nippon Steel Corporation (president: Shoji Muneoka, hereinafter referred to as "NIPPON") has delivered about 8,000 tons of its Hat-type sheet piles and H-shapes to a joint venture of Healy Tibbitts Builders, Inc./Watts Constructors/Obayashi Corp., for the Guam Apra Wharf Improvement Project at a U.S. naval yard in Guam. Our "Hat + H" construction method for high-proof-stress structures, combining Hat-type sheet piles and H-shapes, has been adopted for this project. This is the first case of this method being adopted for harbor construction overseas, and work by the joint venture is now making smooth progress.**

**For this wharf improvement project, renewing the existing wharfs, NIPPON proposed a combination of Hat-type sheet piles and H-shapes as the principal members of the wharf structure, against an originally proposed structure based on European design standards.**

**Some of the likely determinants of this successful adoption may be the following considerations:**

- (1) The "Hat + H" structure features high proof-stress achieved by welding an H-shape to the back of a Hat-type sheet pile, making it possible to optimize the costs of members through various combinations using H-shapes available in a wide range of sizes.**
- (2) Secure quay wall can be realized using identically shaped members in the direction on the extension of the wharf, providing structural continuous stability with no chance of damaging the surrounding grounds.**
- (3) As Hat-type sheet piles and H-shapes can be made into monolithic members only by welding them together, work can be executed simply and easily at a yard near the construction site, for the optimization of both cost and time.**
- (4) The open and Y-shaped top end of these members reduces resistance during driving-in, as compared with the cylindrical shape of conventional large-section sheet piles. This permits the faster execution of work and, requiring no additional use of water jets and other means, eliminates the chances of soil and water pollution.**

**This construction method has been employed for the first time for an American construction project. In scale, this is next to the Pasig-Marikina River Improvement Project, a yen loan project undertaken in the Republic of**

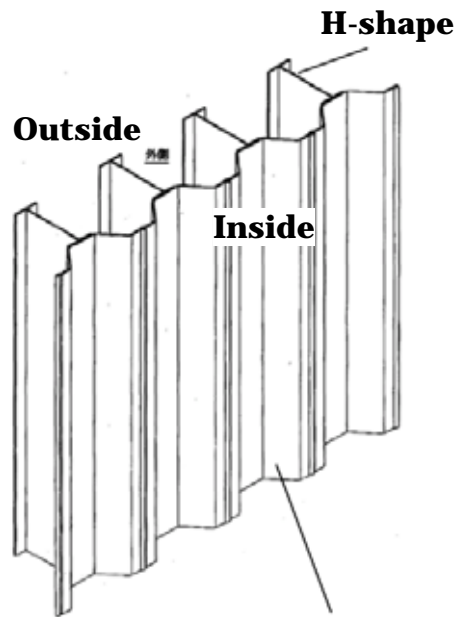
**the Philippines. Our present success with this major American project in Guam and our many other excellent technical proposals and proven delivery capabilities will enable us to move forward with social infrastructure improvement in many countries. This will allow us to offer a broad range of technical proposals not only in newly developing countries but also in the U.S. and in other construction markets overseas.**



**(1) “Hat + H” shown during the process of construction**



**(2) “Hat + H” after completion**



**Hat-type sheet pile**

**(3) Schematic drawing of “Hat + H”**



**(4) The cross-sections of “Hat + H”**

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