STRAAM®

STructural **R**isk **A**ssessment **A**nd **M**anagement
For Ports Infrastructure

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Take the Guesswork Out of Ports Infrastructure

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The marine environment takes an inordinate toll on waterfront structures; they are affected by waves, currents, corrosion at or around the low water level, as well as other inherent issues such vessel impacts. Coupled with the unfriendly environment, marine structures are generally expensive to fabricate, install, and maintain. In today's economy, profit lines are thin and marine structures must be inspected and maintained to maximize their value for port operations.

There is now a new rapid method of analyzing your ports infrastructure – such as piers, dolphins and offshore structures. Formed in 2008, STRAAM – which stands for Structural Risk Assessment and Management – enhances the safety of infrastructure through a revolutionizing way to evaluate how the structure is actually performing. STRAAM's dynamic signature delivers useful information and analyses and provides quantification of global structural behavior, performance and degradation.

STRAAM'S DIFFERENTIATION

Conventional evaluations of marine structures may disrupt port operations and consist of limited field measurements such as ultrasonic thickness readings of selected steel members. Traditional field inspections also have intrinsic complications such as: water visibility and depth, minimal areas of exposed structure, or other physical restraints. Although traditional inspections and structural calculations can be performed to acceptable engineering practices and standards, they are typically limited to providing information in localized areas, whereas, STRAAM provides a holistic diagnosis of the structure. STRAAM's condition assessment is expressed in terms of strength reduction or serviceability capacity based on its global structural behavior. STRAAM's assessment is performed in a non-invasive and non-destructive techniques that combine technology, invention and experience all while your port facilities remain uninterrupted.

STRUCTURE'S HEARTBEAT

The STRAAM Corporation developed a unique and innovative method of deriving value from your port infrastructure that is similar to the medical EKG test – our sophisticated system evaluates the current state of health but also the rate at which that health is changing. STRAAM's SKG monitors the structure and does so without disruption to daily activities. Then we interpret the data, determine the location of damage, and establish options for repair or maintenance. The STRAAM SKG measures the actual condition of the structure which often varies from that of its design either due to fatigue, wear, impacts, degradation, and situations where the construction varied from that of the design documents.

HOW IT WORKS

The STRAAM Dynamic Signature process relies on use of military spec servo accelerometers coupled with proprietary STRAAM developed technology that is able to in most cases derive frequency and damping data from ambient vibrations. The STRAAM SKG can usually collect data in one day, and the SKG equipment can be used by non-engineering staff with little training.

The dynamic signature helps us to assess the loss of stiffness of the structure from its "as-designed" state to its "as-is" current state. STRAAM then develops a validated analytical model using all of the currently available structural and geotechnical information that is consistent with the measured dynamic properties. The model allows us to provide a diagnosis expressed in a number of ways including strength reduction or serviceability capacity. If the structure is compromised, STRAAM works with the Engineer of Record to provide a quantitative measure of where it is compromised and remedial solutions within a range of cost and time options.

An SKG can also be placed on a marine structure for continuous (24/7) monitoring, the resulting data could then be made available in real time to STRAAM as well as port key personnel.