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Research Grant Report - Executive Summary
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Title: Development of Building Continuity Support System
For Office and Important Business Buildings

Yukihiro MASUDA
Associate Professor,
Department of Architecture and Civil Engineering
Toyohashi University of Technology

Summary

The “Building Continuity Support System” visualizes building information necessary for maintaining building continuity (BC) as a support tool in implementing the “Business Continuity Plan (BCP)” and simultaneously records relevant information. The central core of the system configuration is the new “building cockpit” to monitor the safety of the building and the Building Security Recorder (BSR), which is the information recording device.

It is assumed that huge indirect damage may occur, together with direct damage, in the event of a disaster at the center of the city, which will affect government and economic activity. In such cases, most of the indirect damage may be caused by building insufficiency and functional loss. However, while attention has focused on various areas, such as organization management, IT systems, etc., very little thought has been given to building systems except for the widely recognized importance of earthquake-proofing. The necessity of building system measures is currently relatively overlooked, especially in important business and production areas. The prompt establishment of measures to control buildings in the event of an emergency and crisis, and measures for verification of building condition are required. Therefore, our research group is developing the new concept of Building Continuity (BC).

How should we protect the function of a building to promote such Business Continuity Plan? It is important to know the condition of the building in the event of an emergency situation. Information is required, such as which parts of the building can be used, the degree to which each area remains functional, the nature of any problems, if the space can or cannot be used, the causes of insufficiency, and what should be done to restore function. However, in an emergency, it is presumed that necessary information will be lacking, while large amounts of information will emerge, and the personnel handling such situations may be overwhelmed. For buildings, it may be unclear whether responsibility lies with the designer, owner, building manufacturer, facility manager, or general affairs manager, which may cause delay in handling. Under such conditions, the degree of damage to the building and the reasons for insufficiency cannot be determined immediately, and it may take a great deal of time to resume business. Therefore, measures of building management become increasingly important to ensure implementation of Building Continuity even under such disrupted conditions.

The building continuity (BC) support system is regarded as a support service for the above measures. If no measures are implemented, operation capacity decreases to zero immediately in the event of a disaster, and it takes some time until functional

restoration. However, if measures are implemented for business continuity, operation capacity will not decrease to zero even in the event of a disaster, and the time until restoration of function can be reduced.

The building continuity support system is a newly developed system that utilizes sensors and monitoring technology to provide appropriate support to staff by visualizing and recording aggregated building information. The building continuity support system is mainly composed of four information blocks. The first block collects information from sensors and automated measuring instruments mounted at various locations in the building. The second block collects information from seismographs in the building. The third block collects instrumental information, such as electrical power, water supply and drainage, and air conditioning. The fourth block collects fire prevention and crime prevention information using monitoring cameras and security systems. Information gathered here is sent to the “building cockpit” established in the building through communication lines. Data in the building cockpit are recorded using Building Security Recorder (BSR). The Building Security Recorder (BSR) records all information related to the building in real-time, such as communications between the facility manager and onsite personnel, as well as the conditions of equipment, similar to an airplane flight recorder.

As just described, it is very important to develop a process to enable prompt implementation of emergency measures and recovery processes based on diagnosis of the building availability, determination of the causes of insufficiency, and judgment of functional recovery measures to contribute to safety and ease of use of the building, by aggregating and displaying important information regarding the building and allowing such information to be utilized by a competent person.

Research Organization

Building Continuity Support System and Building Security Recorder Research Committee

Yukihiro MASUDA (Toyohashi University of Technology)
Toshio OJIMA(Waseda University)
Shinya KOBAYASHI(Waseda University)
Kozo NAKAJIMA(JES Project Room, Waseda University)
Eisuke HORI(Waseda University)
Shoich KOBAYASHI(Asian Institute of Urban Environment)
Motoyuki TAKABU(Asian Institute of Urban Environment)
Yasuhiro YOSHIKUNI(JES Project Room)
Rei SHIBUTA(JES Project Room)
Takeshi OTA(JES Project Room)
Kanae TAKEDA(JES Project Room)
Kiyohiro YAMAMOTO(YAMATAKE Corporation, Azbil)
Hiroshi NAKAMURA(YAMATAKE Corporation, Azbil)
Yasushi NAGAO(YAMATAKE Corporation, Azbil)
Katsuji EBIHARA(YAMATAKE Corporation, Azbil)
Tsuyoshi YOSHIDA(YAMATAKE Corporation, Azbil)
Kazuaki SHIRANE(YAMATAKE Corporation, Azbil)
Kana MIZUTANI(YAMATAKE Corporation, Azbil)
Takumi TANAKA(YAMATAKE Corporation, Azbil)
Tomoharu TAKAISHI(YAMATAKE Corporation, Azbil)
Tatsumi ASANO(Nohmi Bosai LTD.)
Shinji KATO(Nohmi Bosai LTD.)
Moriyasu NAKAMURA(Building Equipment Planning, Co., Ltd.)