CV

Young-hak SONG

Associate Professor, Ph. D

Department of Architectural Engineering, Gyeongsang National University

Jinju-daero 501, Jin-ju, Gyeongsang-namdo, Republic of Korea 52828

+82-55-772-1756 (W) +82-772-1759 (FAX)

e-mail: songyh@gnu.ac.kr

Contents

Young-hak SONG

Department of Architectural Engineering, Gyeongsang National University

Jinju-daero 501, Jin-ju, Gyeongsang-namdo, Republic of Korea 52828

+82-55-772-1756 (W) +82-772-1759 (FAX)

e-mail: songyh@gnu.ac.kr

October 24th 2018

EDUCATION

Ph. D in Architectural Engineering,

KYUSHU National University, Japan, 2006

Master in Architectural Engineering,

KYUSHU National University, Japan, 2003

B.E. in Architectural Engineering,

DONG-A University, Republic of Korea, 2000

PROFESSIONAL EXPERIENCES

- Associate Professor, Gyeongsang National University, 2013-present.
- Senior Researcher, Korea Institute of Construction Technologies, 2010-2013
- Manager, LG Electronics, 2007-2010
- Research Assistant, Kyushu University, 2006-2007

AWARDS and HONORS

- Architectural Institute of Korea, Conference Paper Award, 2017
- Korean Institute of Architectural Sustainable Environment and Building Systems, Journal Paper Award, 2016
- Korean Institute of Architectural Sustainable Environment and Building Systems, Conference Paper Award, 2016
- Korean Institute of Architectural Sustainable Environment and Building Systems, Conference Paper Award, 2015
- The Society of Air-conditioning and Refrigerating Engineers of Korea, Conference Paper Award, 2015
- The Korean Housing Association, Conference Paper Award, 2011
- Architectural Institute of Korea, Conference Paper Award, 2011
- The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan, Journal Paper Award, 2009

- Marquis Who's Who in the World, 2009-2012
- American Biographical Institute (ABI), 2011, 2012
- International Biographical Centre (IBC), 2012

RESEARCH INTERESTS

- Zero Energy Building
- Building HVAC Commissioning Methods
- HVAC System Performance Evaluation
- VRF Systems Operations and Evaluation
- Renewable Energy Efficiency
- FDD Algorithm
- Cooling Tower Operation Algorithm

PUBLICACTIONS

Journal Publications

1. Study on Variation of Internal Heat Gain in Office Buildings by Chronology, Energies, Vol. 11, No. 1013, 2018
2. Comparison Evaluations of VRF and RTU Systems Performance on Flexible Research Platform, Advances in Civil Engineering, Hindawi, Vol. 2018
3. Field Test and Simulation Evaluation of Variable Refrigerant Flow Systems Performance, Journal of Energy and Buildings, Elsevier, Vol.158, pp. 1161-1169, 2018
4. A study on verification of changes in performance of a water-cooled VRF system with control change based on measuring data, Journal of Energy and Buildings, Elsevier, Vol.158, pp. 712-720, 2018
5. Verification of Energy Reduction Effect through Control Optimization of Supply Air Temperature in VRF-OAP System, Energies, Vol. 11, No. 49, 2018
6. A Study on Development Algorithm of Variation of Energy Consumption and Room Temperature of Building HVAC, Journal of Korean Institute of Architectural Sustainable Environment and Building Systems, Vol.11, No.6, pp.499-516, 2017
7. Investigation on the Reduction Effect on Cooling Power Consumption and Operating Cost of Mist-spray Outdoor Units in Air Conditioner, Journal of Architectural Research, Architectural Institute of Korea, Vol. 19, No. 4. pp.101-108, 2017
8. Operation Results and Utility of Dynamic Pricing Response Control-applied VRF System in Summer Season, Journal of Architectural Research, Architectural Institute of Korea, Vol. 19, No. 3, pp.71-77, 2017
9. An Examination of Load Cut-off Effect using Modern Buildings in Korean Traditional Passive Methods, Journal of Architectural Research, Architectural Institute of Korea, Vol. 19, No. 2, pp.45-52, 2017
10. A Study on FDD Research Trends and Building HVAC Performance Variation with Faulty Status, Journal of Korean Institute of Architectural Sustainable Environment and Building Systems, Vol. 10, No. 6, pp.443-448, 2016
11. The Effectiveness of New Power Generation and Energy Demand Reduction to Achieve Greenhouse Gas Reduction Goals in Building Area, Journal of Architectural Research, Architectural Institute of Korea, Vol. 18, No. 2, pp.59-64, 2016
12. A Study on Energy Saving and Value Evaluation Method with Building Green Retrofit, Journal of Korean Institute of Architectural Sustainable Environment and Building Systems, Vol. 10, No. 2, pp.152-158, 2016
13. Analysis of the Optimum Solar Collector Installation Angle from the Viewpoint of Energy Use Patterns, Energies, Vol. 10, No. 1753, 2017
14. A Study on the Prediction of the Optimum Performance of a Small-scale Desalination System using Solar Heat Energy, Energies, Vol. 10, No. 1274, 2017
15. A Study of Optimal Energy Consumption Measures for Building Facades with a Parametric Combination of Blinds, Lighting and HVAC systems, JAABE (Journal of Asian Architecture and Building Engineering), vol.15, no.2, pp.319-326, 2016
16. A Study on Winter Season Measurement Results to cope with Dynamic Pricing for the VRF System, Journal of Architectural Research, Architectural Institute of Korea, Vol. 17, No. 3, pp.109-115, 2015
17. A Comparison Study on Electricity Generation between Altitude Tracking and Fixed PV Systems in

Winter Season, Journal of Korean Institute of Architectural Sustainable Environment and Building Systems, Vol. 9, No. 4, pp.286-291, 2015

18. An Examination of Domestic Electricity Consumption Cut-off with Building Energy Retrofit Journal of AIKRA, Vol. 16, No. 4, pp.203-208, 2014
19. A Study of Modular Architecture's Design to Dwelling Environment in Antarctica, Journal of the Korea Housing Association, Vol. 25, No. 2, pp.1-8, 2014
20. Experimental Study of Cooling Energy Saving Verification using Blinds and Phase Change Material (PCM), Journal of the Society of Air-conditioning and Refrigerating Engineers of Korea, Vol. 26, No. 1, pp.26-31, 2014
21. Building Energy Performance Evaluation installed Renewable Energy System via Field Data Measuring, Journal of Korean Institute of Architectural Sustainable Environment and Building Systems, Vol. 7, No. 1, pp.32-37, 2013
22. A Study of Temporary Housing Design with Unit Modular Method, Journal of Architectural Institute of Korea, Vol. 29, No. 3, pp.155-162, 2013
23. A Snow Drift Prediction of Jangbogo Station using CFD Analysis, Journal of Architectural Institute of Korea, Vol. 28, No. 12, pp.35-44, 2012
24. A Research Study on Comparative Analysis of Architectural Planning Improvement on Temporary Housing of Korea and Japan, Journal of Architectural Institute of Korea, Vol. 28, No. 11, pp.29-37, 2012
25. A Study of Zero Energy Building Process Strategy using Base Model, Journal of Architectural Institute of Korea, Vol. 28, No. 9, pp.269-276, 2012
26. A Study on Field Examinations and Interviews for Yeonpyeongdo Temporary Housing, Journal of the Korea Housing Association, Vol. 23, No. 3, pp21-28, 2012
27. A Study of Antarctica Camp Design, Manufacture using Modular Method, Journal of Architectural Institute of Korea, Vol. 27, No. 10, pp.85-93, 2011
28. Energy Saving Performance and Effective Operation Strategies of Cooling Plant System using an Inverter Chiller for Building Air-Conditioning; Part 2 A System Performance Evaluation based on Model-Based Simulation Analysis and Effective Operation Strategies, The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan, No.129, pp.31-38, 2007
29. Energy Saving Performance and Effective Operation Strategies of Cooling Plant System using an Inverter Chiller for Building Air-Conditioning; Part 1 A System Performance Evaluation based on Actual Operation Data Analysis, The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan, No. 124, pp.11-18, 2007
30. A Basic Study on Development of Fault Detection and Diagnosis Tool for Building Air-Conditioning System, Architectural Institute of Japan, Vol. 607, pp.71-78, 2006
31. A study on the energy performance of a cooling plant system: Air-conditioning in a semiconductor factory, Journal of Energy and Buildings, Elsevier, Vol. 40, Issue8, pp.1521-1528, 2008
32. A development of easy-to-use tool for fault detection and diagnosis in building air-conditioning systems, Journal of Energy and Buildings, Elsevier, Vol. 40, Issue2, pp.71-82, 2008
33. Effects of utilizing seawater as a cooling source system in a commercial complex, Journal of Energy and Buildings, Elsevier, Vol. 39, Issue10, pp.1080-1087, 2007
34. Energy performance of a cooling plant system using the inverter chiller for industrial building, Journal of Energy and Buildings, Elsevier, Vol. 39, Issue3, pp.289-297, 2007

Conference Proceedings

1. An Examination of Energy Saving Effect according to Indoor and Outdoor Condition using Mist Spray Outdoor Unit, Proceeding of Architectural Institute of Korea, Vol. 37, No. 1, 2017
2. An Examination the Energy Saving Effect of HVAC System with Cooling Water Flow Control, Proceeding of Architectural Institute of Korea, Vol. 37, No. 1, 2017
3. An Analysis FDD Research Trends and HVAC Energy Consumption with Faults, Proceeding of Busan, Ulsan, Gyeongnam Branch, Architectural Institute of Korea, 2016
4. A Study on FDD Research Trends Analysis and Classification of Diagnostic Methods, Proceeding of Korean Institute of Architectural Sustainable Environment and Building Systems, 2016
5. Optimal Daily Control Method of Single Axis Tracking PV System, Proceeding of IAQVEC 2016, 9th International Conference on Indoor Air Quality Ventilation & Energy Conservation in Buildings, 2016
6. An Actual Measurement by Studies on the Variation of the Panel Temperature and the Amount of Power Generated by Cooling PV Panel, Proceeding of Busan, Ulsan, Gyeongnam Branch, Architectural Institute of Korea, 2015
7. Actual Measurement Result of the Altitude Tracking Type PV System in Winter Season, Proceeding of Busan, Ulsan, Gyeongnam Branch, Architectural Institute of Korea, 2015
8. A Study on Ventilation Load and Energy Based on Indoor CO2, Proceeding of Korean Institute of Architectural Sustainable Environment and Building Systems, 2015
9. An PV Experiment of Power Generation with Panel Temperature, Proceeding of Korean Institute of Architectural Sustainable Environment and Building Systems, 2015
10. A Study on Summer Season Measurement Results to cope with Dynamic Pricing for the VRF Algorithm, Proceeding of Korean Institute of Architectural Sustainable Environment and Building Systems, 2015
11. A Study on the Altitude Tracking PV Power Generation Characteristics through the Field Measurement in Winter Measured, Proceeding of Korean Institute of Architectural Sustainable Environment and Building Systems, 2015
12. Study on the Control Algorithm for VRF System at Time of Use Rates; Vol. 2 Effectiveness Verification of Winter Operation with Field Data, Proceeding of the Society of Air-conditioning and Refrigerating Engineers of Korea, 2015
13. A Study of Lighting Energy Variation via Façade and Blind Combination, Proceeding of Korean Institute of Architectural Sustainable Environment and Building Systems, 2013
14. Establishment of Activation Methods for Green Remodeling in the Existing Buildings, Proceeding of the Society of Air-conditioning and Refrigerating Engineers of Korea, 2013
15. On Study of Energy Saving Method of Remodeling in Small Retail, Proceeding of the Society of Air-conditioning and Refrigerating Engineers of Korea, 2013
16. Measuring Data Analysis of Renewable Energy System in the Exhibition Building, Proceeding of Korean Institute of Architectural Sustainable Environment and Building Systems, 2012
17. The Study of Façade Design Improvement of the Building using Double Skin Façade Simulation, Proceeding of Energy and the Environment 2012 in Croatia, HSSE, 2012
18. An Analysis of Energy Consumption Monitoring for Zero Energy Building in Site, Proceeding of Energy and the Environment 2012 in Croatia, HSSE, 2012
19. A Study on a Temporary Dwelling House Plan with Modular Box Combination, Proceeding of ISHED (International Society of Habitat Engineering and Design) Conference 2012 in Shanghai, 2012

20. A Study of Field Examination on Temporary Housing in Japan, Proceeding of the Korea Housing Association, 2012
21. A Study on Administration System of Temporary Housing of Korea and Japan's, Proceeding of Architectural Institute of Korea, Vol. 32, No. 1, 2012
22. Energy Consumption Estimation for Typical Office Building with ECO2 Program, Proceeding of Architectural Institute of Korea, Vol. 32, No. 1, 2012
23. Snow Drift Prediction of Antarctic Station using CFD Simulation, Proceeding of Architectural Institute of Korea, Vol. 32, No. 1, 2012
24. Typical Model of Building Energy Consumption due to Energy Saving Methods with ECO2 Program, Proceeding of YSRIM (the Yellow Sea Rim International Meeting on Building Environment and Energy) 2012 Japan, 2012
25. A Study of Field Examination for Yeonpyeongdo Temporary Housing, Proceeding of the Korea Housing Association, 2011
26. Zero Energy Buildings and a Basic Theory of Integrated Design Process, Proceeding of Architectural Institute of Korea, Vol. 31, No. 2, 2011
27. A Study of Current State Examination for Prefab Architecture and Manufacturer, Proceeding of Architectural Institute of Korea, Vol. 31, No. 2, 2011
28. The Estimation of Indoor Ventilation and Thermal Performance of Double-skin Façade Applied to Hospital Building, Proceeding of Architectural Institute of Korea, Vol. 31, No. 2, 2011
29. A Study on Variation of HVAC Load and System Cost in Building using Double Façade System, Proceeding of ISAIA (International Symposium on Architectural Interchanges in Asia) 2010 Japan, 2010
30. Evaluation on Energy Performance of Heating Plant System installed Energy Saving Technologies, Proceeding of ICEBO (International Conference for Enhanced Building Operations) 2001, Dallas, 2001

FUNDED RESEARCHES

1. Development of THI Chart for Each Type of Livestock and Poultry and THI Internal Cage Prediction Model, Rural Development Administration, 2018, 2019
2. A Study on Primary System Retrofit Methods for High Energy Performance, National Research Foundation of Korea, 2017-2022
3. A Development of the BEMS Software Based on the KS, Korea Institute of Construction Technologies, 2016-2019
4. A Study on PV Efficiency Preservation for Asia Super Grid, National Research Foundation of Korea, 2014-2017
5. A System Development for Energy Saving and Operating Optimization based on Heat Pump, Samsung Electronics, 2015, 2016
6. Outer Louver Development for Building Thermal Environment Improving, Ministry of SMEs and Startups, 2015, 2016
7. Performance and Effectiveness Verification for DPR Control Algorithm, Samsung Electronics, 2015, 2016
8. A Research on Power Generation Performance of Altitude Tracking PV Systems, Korea Sanhak Foundation, 2014, 2015

SUPERVISED STUDENTS

Doctoral Students

1. Seung-chul PARK (2017-present): Advanced fault detection and diagnosis for HVAC system with BEMS

Master Students

1. Juwan HA (2017-present): THI index improvement with various ventilation types
2. Hyemi KIM (2016-2018): Peak load and transportation energy reductions by energy retrofit scenarios in office buildings
3. Min-seok KIM (2014-2017): A study on operation results and evaluation of VRF system applied dynamic pricing control
4. Seung-chul PARK (2014-2017): Algorithm development of fault detection and diagnosis with model-based simulation
5. Ga-young KIM (2014-2017): A study on cooling and tracking operation of PV array for improving power generation efficiency
6. Deok-nam MOON (2014-2017): An experimental study on indoor thermal environment change by applying the automatic external louver

Undergraduate Students

1. Wan-uk IM (2018): Performance verification with low temperature cooling water
2. Young-bu KIM (2018): Heat storage operation examination of thermal heat pump
3. Jun-ho LEE (2018): HVAC and lighting energy consumption examination in library building

4. Dae-young KANG (2018): Route comparison of Asia super grid project
5. Jun-hyo IM (2018): Building internal heat load in office buildings
6. Hye-won Kwon (2018): Energy consumption verification of integrated plumbing system
7. Hee-jee AN (2018): Operation result examination with mist-spray outdoor unit
8. Won-chul KIM (2018): Indoor thermal environment comparison with henhouse type
9. Ji-hoon HA (2018): THI index comparison with cross ventilation type
10. Dong-wook KIM (2017): Cooling load expectation of iced-storage thermal system
11. Chang-hyun SIM (2017): Energy consumption variation for window retrofit
12. Juwah HA (2017): Running cost comparison with thermal storage system
13. Hyo-won KIM (2017): Lighting energy survey in office building by chronology
14. Yumi PARK (2017): Plumbing diameter design for pump energy reduction
15. Hee-won PARK (2017): Ecology design comparison with residential and commercial buildings
16. Hyemi KIM (2016): Cooling energy saving with water-cooled VRF system using a water control
17. Jong-seon RYU (2016): Electricity generation comparison with altitude tracking and Fixed PV
18. Eun-ji PARK (2016): FDD research trends survey
19. Jae-young LEE (2016): Flow control of water-cooled VRF system
20. Seong-hyeon HWANG (2016): PV power generation efficiency by PV cooling and cleaning
21. Ju-an YU (2015): Developing countries housing design using appropriate skills
22. Jin-woo PARK (2015): Lighting energy saving measures using appropriate skills
23. Chan-su PARK (2015): PV tracking system efficiency
24. Yu-jeong SON (2015): Heating energy saving effect with new VRF algorithm
25. Bo-kyeong LEE (2015): Optimal combination of chiller using performance curve
26. Young-jun LEE (2015): Improving PV efficiency with cooling system
27. Jin-woo LEE (2015): FDD of VAV system
28. Hyo-jeong LEE (2015): Indoor air carbon dioxide concentration survey
29. Kwang-hun JEUN (2015): Application of exterior building blind
30. Seung-hwan KIM (2014): Development of green retrofit business model
31. Min-seok KIM (2014): Ventilation rate based on carbon dioxide
32. Jun-hyun PARK (2014): Maintenance measure effect of PV efficiency
33. Yeong-ung HWANG (2014): Low-cost housing design with appropriate technologies
34. Seong-cheol PARK (2014): National electricity reduction with green retrofit
35. Nyun-song CHUN (2014): Energy performance evaluation with monitoring data
36. Hee-je KIM (2014): Water treatment and resource business survey
37. Ga-young KIM (2014): Renewable energy survey for Asia super grid

Teaching

- Building HVAC system
- Design of building service
- Building energy conservation plan
- Building facilities control
- Architectural engineering capstone design
- Architecture Facilities
- Introduction to Architectural Engineering
- Low emission building
- Creative engineering design

PROFESSIONAL ACTIVITIES

University Service

- Steering committee of library, 2018-present
- CQI committee of MSC (math, science and chemistry), 2017-present
- Chairman, Department of architectural engineering, 2017-present
- Producer, ABEEK (Accreditation board for engineering education of Korea), 2016-present
- Councilor, School of engineering, 2014-2015
- University entrance auditor, 2014-2016

Professional Societies

- Committee, Special design division of Korea defense ministry, 2018-present
- Technical Advisor committee, Busan port authority, 2018-present
- Committee, Construction technologies review of Gyeongsang-namdo province, 2017-present
- Technical Advisor committee, Korea infrastructure safety corporation, 2015-present
- Architecture committee of Gyeongsang-namdo province, 2014-present
- BTL committee, Korea defense ministry, 2014-2015
- Technical Advisor committee, Korea agency for infrastructure technology advancement, 2014-2018

Membership

- Member, Korea Institute of Architectural Sustainable Environment and Building Systems, 2009-present
- Member, the Society of Air-conditioning and Refrigerating Engineers of Korea, 2008-present
- Member, Architectural Institute of Korea, 2007-present
- Member, the Society of Heating, Air-conditioning and Sanitary Engineers of Japan, 2001-present
- Member, Architectural Institute of Japan, 2000-present