



Oxford Properties Group
Marine Building (355 Burrard Street), Vancouver BC

Greenhouse Gas Emissions Verification (January 2013 – December 2013)

Final Report

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Verification Report Prepared By:

KUZUKA
wake up·emerge·grow

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1. INTRODUCTION

MMM Group Limited (MMM Group) engaged Kuzuka Ltd. (Kuzuka) to conduct a verification of the greenhouse gas (GHG) emissions of Oxford Property Group's Marine Building located at 355 Burrard Street in Vancouver, British Columbia, Canada. The verification was conducted to confirm that the GHG emissions for the Marine Building were calculated in accordance with the requirements of ISO 14064-1 for the period from January 1 2013 to December 31 2013, and to satisfy the third-party verification requirements of the CSA CleanStart registry and LEED-EB EAc6.

This report is intended to provide MMM Group with details about the verification conducted by Kuzuka beyond that which is reported in the accompanying public verification statement. The report is organized into the following subsections:

- Scope and Parameters of the Verification;
- Verification Process;
- Results of Data Quality and Data Management Assessments;
- Concluding Statement.

2. SCOPE AND PARAMETERS OF THE VERIFICATION

The scope of the GHG emissions verification was established prior to the verification engagement as:

Operational Boundary: GHG emission sources within the operational control of the Marine Building include direct emissions from back-up generator diesel combustion, and indirect emissions from the consumption of purchased electricity and district steam for heating. There were no other indirect GHG emission sources outside the operational control of the Marine Building

Organizational Boundary: The Marine Building is considered as a physical boundary and the GHG emissions are consolidated to that boundary.

Time Period: January 1, 2013 – December 31, 2013

Intended Users: CSA GHG CleanStart Registry and Canadian Green Building Council (CaGBC) LEED-EB program

Verification Standard: ISO 14064-3

The parameters of the GHG inventory verification were defined as:

Assertion Document: Marine Building GHG Inventory Report (dated September 20, 2014)

Objective: For the purposes of posting on the CSA GHG CleanStart Registry and receiving LEED-EB Energy and Atmosphere credit 6 (LEED-EB EAc6), establish that:

- Stated GHG assertions are true and correct over the period of time covered by the inventory report;
- GHG assertion has been prepared in accordance with ISO 14064-1.

Criteria: ISO 14064-1

Level of Assurance: Reasonable

Materiality Threshold: 5%

3. VERIFICATION PROCESS

Kuzuka performed a GHG verification in accordance with ISO 14064-3 with a reasonable level of assurance of the Marine Building's GHG emissions from January 2013 – December 2013. Kuzuka followed a three-phase process for the GHG verification project:

- **Phase 1: Verification Planning** - The following steps were conducted in the Verification Planning phase of the project:
 1. Kuzuka issued a request for information to MMM Group to obtain the relevant datasets, documentation, and information needed for the verification engagement. Information that was requested included the following:
 - GHG inventory report for the period covering January 1 2013 – December 31, 2013;
 - GHG inventory data for the period covering January 1 2013 – December 31, 2013 (including any spreadsheets or other tools used for inventory data management);
 - Copies of energy invoices (diesel, steam, electricity);
 - Evidence of GHG emission factor values provided by steam providers;
 - Where invoices are not available, evidence of methodology used for consumption estimates;
 - Other data relevant to the project.

- **Phase 2: Verification Execution** - The following steps were conducted in the Verification Execution stage of the project:
 1. Kuzuka performed a desktop review of the GHG inventory data, including:
 - comparison of original GHG activity data (e.g. invoices) against values recorded in the Marine Building's GHG inventory;
 - confirmation of the accuracy of GHG calculations, including inclusion of all relevant GHG types (e.g. CO₂, CH₄, N₂O) and use of appropriate global warming potential values;
 - utilization of appropriate emission factors and conversion equations in GHG calculations;
 - appropriateness of any assumptions made.

2. Kuzuka conducted a review of the GHG information system and controls. This included an assessment of the procedures for collecting, processing, and consolidating GHG data by MMM Group. This also included an assessment of data management systems in place to ensure accuracy and quality of data used in the Marine Building's GHG inventory. This step was accomplished through a review of data management procedures in the GHG inventory document.
3. Kuzuka assessed the GHG inventory against the criteria specified in ISO 14064-1.

A copy of the verification notes is provided in Section 4 of this report.

➤ **Phase 3: Verification Completion** - The following steps were conducted in the Verification Completion stage of the project:

1. Kuzuka prepared a final report for the internal use of both Oxford Property Group and MMM Group that describes the scope and parameters of the verification, the verification process, and the findings of the verification. A draft report was submitted to MMM Group for review and comment prior to issuance of the final report.
2. Kuzuka issued a public verification statement letter in accordance with the requirements of the CSA CleanStart registry.

4. RESULTS OF DATA QUALITY AND DATA MANAGEMENT ASSESSMENT

The following table summarizes the results of the verification for each source of GHG in the Marine Building's inventory. The table reports the discrepancies observed in Kuzuka's data quality and data management assessment of the draft GHG inventory, and describes the actions taken by MMM Group to address the discrepancy prior to issuance of the final GHG inventory.

Please note that while Kuzuka's verification assessment (summarized in the following table) was conducted on the Marine Building's draft GHG inventory for the January 2013 – December 2013 period, the verification statement that accompanies this report has been issued for the final GHG inventory (dated September 20, 2014) that addresses the discrepancies observed in the verification of the draft inventory.

GHG SOURCE	VERIFICATION APPROACH	OBSERVATIONS	RECOMMENDED REMEDIAL ACTIONS	REMEDIAL ACTIONS TAKEN
Direct Scope 1 (Diesel) <i>Activity Data Assessment</i>	Consumption data from invoices were reviewed against data in GHG inventory.	No discrepancies in consumption data.	No actions required.	
Direct Scope 1 (Diesel) <i>Assessment of Approach and Assumptions</i>	Reviewed emission factors used in GHG inventory against original source (Env Canada NIR). Reviewed GWP values used in GHG inventory.	No discrepancies in emission factors used in GHG inventory. Outdated source listed on "List" worksheet of GHG inventory spreadsheet.	Recommend updating source of emission factors as the latest version of Env. Canada NIR 1990-2012.	MMM: done.
Direct Scope 1 (Diesel) <i>Calculations Assessment</i>	Reviewed all calculations made in GHG inventory spreadsheet for accuracy.	No discrepancies in GHG calculations.	No actions required.	
Indirect Scope 2 (Steam) <i>Activity Data Assessment</i>	Consumption data from invoices were reviewed against data in GHG inventory.	No discrepancies in consumption data.	No actions required.	
Indirect Scope 2 (Steam) <i>Assessment of Approach and Assumptions</i>	Reviewed emission factors used in GHG inventory against original source Reviewed GWP values used in GHG inventory	Emission factors provided from steam provider (Central Heat Distribution) via email on July 10, 2014	Please provide verifier with a copy of email received from steam provider	MMM: email forwarded on September 17, 2014

GHG SOURCE	VERIFICATION APPROACH	OBSERVATIONS	RECOMMENDED REMEDIAL ACTIONS	REMEDIAL ACTIONS TAKEN
Indirect Scope 2 (Steam) <i>Calculations Assessment</i>	Reviewed all calculations made in GHG inventory spreadsheet for accuracy.	No discrepancies in calculations in GHG inventory.	No actions required.	
Indirect Scope 2 (Electricity) <i>Activity Data Assessment</i>	Consumption data from invoices were reviewed against data in GHG inventory.	Consumption data from invoices matched the amount in GHG inventory.	No actions required.	
Indirect Scope 2 (Electricity) <i>Assessment of Approach and Assumptions</i>	Reviewed emission factors used in GHG inventory against original source. Reviewed GWP values used in GHG inventory.	Emission factors for CO ₂ , CH ₄ , and N ₂ O should be updated to the most recent Environment Canada NIR (2014) No Scope 3 emissions reported for tenants sub-metered energy use. Confirmed with MMM that West Georgia tenants are not sub-metered.	Recommend updating source of emission factors as the latest version of Env. Canada NIR 1990-2012. <ul style="list-style-type: none"> Change CO₂ emission factor to 8.1 g/kWh Change CH₄ emission factor to 0.002 g/kWh Change N₂O emission factor to 0.0002 g/kWh 	MMM: emission factors updated. MMM: tenants are not sub-metered (reconfirmed with Jolene)
Indirect Scope 2 (Electricity) <i>Calculations Assessment</i>	Reviewed all calculations made in GHG inventory spreadsheet for accuracy.	No discrepancies in calculations in GHG inventory.	No actions required.	

5. CONCLUDING STATEMENT

The Marine Building reported greenhouse gas emissions of 238.744 metric tons of CO₂e for the period of January 1, 2013 – December 31, 2013.

Based upon the defined scope of this verification, Kuzuka has concluded with a reasonable level of assurance that the Marine Building's reported GHG emissions for the period of January 1, 2013 – December 31, 2013 are materially correct and is a fair representation of GHG data and information. In addition, Kuzuka has concluded that the Marine Building's GHG emissions inventory has been prepared in accordance with the requirements of ISO 14064-1.