

## **CHALLENGING THE NORM**

Sustainability Report 2014



# **SCOPE OF THE REPORT**

Gammon Construction Limited is a private company jointly owned by Jardine Matheson, an Asian-based conglomerate, and Balfour Beatty, a leading global publicly listed infrastructure business. The principle activities of Gammon are civil engineering, foundation works, building construction, electrical and mechanical installation, manufacture and supply of fabricated steel, manufacture of concrete and provision of plant and machinery. This report covers the operations of the company and subsidiaries in Hong Kong, Macau, Mainland China and Singapore for the 2014 calendar year.



for clients and the company. Our annual sustainability report is available on our website where you will find previous years data for our

Key Performance Indicators, the verification statement and an index aligning our report with Global Reporting initiative (GRI) 3.1 sustainability reporting guidelines. The report is verified by an independent third party and fulfilled the C+ application level of the GRI 3.1 Guideline.

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Front Cover

For more information and trend data, please visit www.gammonconstruction.com

**Our Brands** 



Civil, foundations, building, E&M and construction services covering plant and equipment, concrete technology and steel fabrication



Public-Private Partnership business



## **CHIEF EXECUTIVE'S STATEMENT**

"It is our responsibility in partnership with the Government to do whatever is in our power to reduce the volatility and uncertainty in our industry sector."



The construction industry has experienced a 'golden era' over the previous few years with the Government investing heavily in development and infrastructure. As we look forward, several factors including delay of the Government budget, shortage of skilled labour and ageing workforce have come together to affect the industry resulting in a lack of continuity for the future.

In my view, to stay on top of our game while meeting the demand for works, we must focus on our capabilities in innovation, productivity, people development and caring to ensure we can deliver on our Roadmap 2020 and move us toward greater sustainability. In light of the anticipated government investment in public works and public housing, we are optimistic in our ability to maintain consistency in our growth.

The Government needs to be aware that its funding approval can have a profound effect on the continuity of the project pipeline, and I feel we can work together in creating less industry volatility and more worker security. The number coming through the Supplementary Labour Scheme (SLS) has dropped with less than 400 last year, combined with slower processing time, means we need to find other ways to attract, train and retain a quality workforce.

In order to address the labour shortage while reducing the demand for labour we have implemented various initiatives such as the Contractor Cooperative Training Scheme (CCTS) as well as the use of technology and process improvements. I feel it is critical for Hong Kong to have land allocated specifically for prefabrication work. The application of technologies such as Building Information Modelling (BIM), 3D printing and scanning and robotics give us greater flexibility whilst making construction more efficient. We will continue to invest in precast and prefabrication facilities, while aiming to reuse 65% of all temporary works through modularisation in 2015.

2014 saw our overall Accident Incident Rate fall from 6.0 to 5.5 per 1,000 workers, but unfortunately it was tempered by the fatality in the Hong Kong operations. Such tragedy serves to strengthen our resolve to work harder in pursuit of our Zero Harm goal. Our "Bold Commitments" is gaining buy-in internally and receiving recognition in the industry. Through our Zero Harm initiatives, our people are digging deeper, not just for Gammon but for the industry so as to create value for the community through a higher standard of worker safety, welfare and respect. I want to thank my staff as you continue to drive sustainability in order that every one of our projects leaves a "legacy" of positive social value.

I was very pleased for Gammon to receive the Gold Award (Construction Industry) of the Hong Kong Awards for Environmental Excellence (HKAEE), for the Midfield Concourse project and two Gold Awards by the Hong Kong Green Awards (HKGA) 2014 for our outstanding performance in green procurement and management.

I believe if we are to create value and overcome current and future obstacles we must continually adapt and actively "challenge the norm and push for improvement".

HO

Thomas Ho Chief Executive Gammon Construction Limited March 2015

## STAKEHOLDER ENGAGEMENT

To grow our understanding of material issues that impact the business we engaged with our stakeholders throughout 2014. We identified their expectations of us as well as their concerns regarding our risks and opportunities.

We engaged our stakeholders using a variety of channels. Our clients gave us feedback through our conferences, yearly customer survey and review reports such as the Contractor Performance Rating (CPR) by the Works Bureau and Housing Authority Performance Assessment Scoring System (PASS), suppliers and subcontractors through the satisfaction survey as well as the workshops, employees through the annual survey and the Director's workshop.

Through these engagements and the ongoing interaction between management and employees, clients, NGOs, subcontractors and suppliers we gain much insight to issues that are both, of concern to stakeholders and impactful on the business. The feedback provided gives us a good scan of those issues that are immediate as well as long term.

The material issues that are of concern to both internal and external stakeholders, along with our responses, are listed below.

Material Issue	Response
Safety Management	Ongoing vigilance and review through Zero Harm programme
Staff Retention, Turnover and Development of our People	Step up current retention efforts and coordinate more across divisions
Declining Productivity across the Labour Force	Deep dive into our own processes and systems
Innovation	Enhance opportunities for collaboration and support industry entrepreneur activities
Working Environment	Listening, responding and demonstrating the caring culture
Improving Client Satisfaction	Continue to engage early, deploy technology and innovative techniques
Quality Performance	Review and enhancement of existing processes and systems
Waste	Step up awareness and training at all levels
Corporate Social Responsibility (CSR)	Engage more broadly with staff and CSR partners on our CSR responsibilities
Energy	Step up existing programmes and establish stronger linkages across divisions
Energy	Step up existing programmes and establish stronger linkages

## **Our Progress on Roadmap 2020**

Gammon is well into the implementation of the roadmap with achievements in each of the six strategic areas. We are diving deeper by taking on board the material issues raised by internal and external stakeholders since they help us horizon scan for significant impacts on our ability to do business in a responsible and sustainable manner.



## ZER·HARM

#### Gilbert Tsang Executive Director

The construction industry is resource intensive, a contributor of carbon emissions and we rely on a skilled workforce. Therefore, ensuring the sustainability of Gammon's resource usage and available workers is crucial to our competitiveness. Further it is critical to our role in ensuring responsible use of resources whilst promoting a green and resilient Hong Kong. Our 2015 target for the re-use of temporary works is 65% and we will continue to drive down our carbon emissions through B5 biodiesel, strategic procurement and promoting greener building products.



Yu Sai Yen Executive Director

Gammon's leadership hinges on its construction expertise and ability to envision and effectively implement sustainable construction practices. Clients entrust us to successfully introduce new or alternative construction methods, such as the non-demolition, non-underpinning schemes, and travelling formwork for the Cathay Pacific Cargo Terminal and Midfield Concourse projects. The West Island Line for which we installed a conveyor system to avoid heavy trucking on local roads and reduce our environmental impact. Through the wide adoption of modularisation in temporary works we have reduced man-days required on site, which avoids critical safety risks by assembling in a safe and controlled work environment.



#### Nigel White Executive Director

Recent social and political issues have cast a shadow over the Hong Kong construction industry with possible impacts in years to come. Increasing construction costs and declining production rates bring challenges. To stay on top of these challenges, we are introducing innovative construction methods and materials that benefit our clients and minimise our negative impacts. Further, with the anticipated HK\$70 billion public works each year for the next few years and 480,000 housing units planned in the Long Term Housing Strategy, we see the opportunities and remain optimistic about the future.

## 1

## Expanding Zero Harm to the whole Industry.

With leadership comes an understanding of the importance of health, safety and welfare, it is our belief that taking a proactive approach to site safety is paramount.

## 2

Minimising our impact on the environment and reducing energy usage.

We carried out a gap analysis using ISO 50001 for three projects with a target for verification by an independent auditor within the first quarter of 2015. Our fuel usage exceeded our 2014 target of 50% with 70% of our diesel consumption from B5 biodiesel.

## 3

Procuring products, works and services that are safer and more responsible.

Our procurement of sustainably sourced materials reached 35% and we secured 100% of our aggregates from responsible sources. Our four concrete plants have achieved the Wastewi\$e Excellence Label in 2014 and our ready mix concrete is targeted for the Carbon Labelling Scheme by Construction Industry Council.



#### Edmond Lai Director

Sustainability starts with People. In pursuit of our strategy of being a Contractor of Choice, we adopt a three-pronged approach to enhance our labour quality: self-performing, multi-skilling and new blood training. We now directly employ about 3,000 skilled workers in Hong Kong and are increasing that number. Over the past four years, we have trained up more than 500 skilled workers through the Contractor Cooperative Training Scheme (CCTS). In addition, we have launched a Caring Programme in the business, including Mentorship, to make sure that our staff's occupational and development needs are taken care of.

## 4

Adapting our skills and growing expertise to meet stakeholder needs.

We expanded the virtual design team in order to develop 3D printing as a communication tool facilitating the role of our operations team. Our expertise in implementing alternatives such as modularisation, off-site prefabrication has increased productivity, quality, safety as well as our environmental performance.

## 5

Ensuring construction is a viable, long term industry valued by society.

We conducted a Talent Attraction & Retention Survey in 2014 that targeted our young professionals, management staff and HR employees, combined with face-to-face engagement with on site workers and supervisors to more fully understand the variety of needs that make the job attractive.

## 6

Optimising design, methods and materials, and offering alternatives.

We utilised three alternative methods at the SCL 1111 project whereby construction costs, time and materials savings were gained, coupled with reduction in risks to our workers and the public, whilst minimising both noise and dust nuisances to the community and our environmental footprint.

## **PROSPEROUS MARKETS**



## LONG TERM VIABILITY

- A strategic approach to ensure quality and efficiency would create value for the whole industry.
- Enhanced efficiency of the labour force is needed to support the adoption of new technologies.
- Working with supply chain partners to increase capabilities is key to our strategic procurement.

## **Building Capability**

Across the industry we have a sense that we face an ongoing drop in productivity due to the confluence of several factors. These factors, some more pronounced than others, indicate a need for a long term and strategic approach if we are to secure our sustainable and viable growth. We must better understand what the key elements are, and how this will impact us over the mid to long term.

As we see some shift from civil infrastructure projects to more commercial and residential, preparation for a shift in skills requirements is evident. With a significant ageing of the workforce, a better understanding of where investment is needed is critical if we want to have high quality construction delivered in a sustainable manner.

Gammon will need 2.000 more construction workers or 11% more than current, and we need 28% more bar benders, as well as being faced with a 15% shortage of concreters. To help ease the pressure the HKSAR's Development Bureau could take on the SLS applications for workers allocated to public projects. In addition, we need the support of correct incentives such as the Building and Construction Authority (BCA) in Singapore introducing a S\$250 million Construction Productivity and Capability Fund (CPCF) as part of the Singapore Government's effort to help the construction industry improve productivity and strengthen its capability through workforce development and technology adoption.

To address the shortage of labour as well as the requisite skills for Hong Kong's current and up coming projects, Gammon is, and has been Public Rental Housing Development at Tuen Mun Area 54 Site 2 Phases 1 & 2

implementing a multi-pronged approach using multi-skilling, mentoring, CCTS, promoting innovation and the use of new technology.

## **Ensuring Quality**

Delivering high quality products and services to our clients and to our communities is of paramount importance to our success. To achieve this, the Internal System Assurance Validation (SAV) Team works closely with the project teams and different departments to provide support and implement strict quality assurance guidelines in order to meet the clients' expectations.

To ensure the quality of products and the integrity of the production process from our supply chain in China, we engaged our own Quality Control Engineers, who are stationed in Shenzhen and are certified to Hong Kong and international standards. They supervise the production processes of our suppliers and when necessary give assistance on technical and quality-related issues. Depending on the requirements of a project, they may be there full time or visit

## Imagination Drives Innovation

Our 13th Annual Innovation Competition was held in November when we saw original and bold ideas from our staff, workers and business partners from both Hong Kong and Singapore. The competition has been a powerful platform for bridging communication, exchange new ways of thinking and for seizing the enabling power of technology and the creativity of our workforce. Since the \$2 million fund set up in 2009, nurturing of our innovation culture has been seen in the growth in number of entries, with 64 in 2008-09 and 88 for this year's competition.

Many innovative ideas were shared, including the Bored Pile Head Trimming method which removes the pile head by split and lift. This

on a daily basis during the production period, ensuring conformance to both our and customers' quality and programme requirements. A local Quality Control Team in Shenzhen enables timely communication and prompts response for solutions and decisions with factories. minimises the risk to workers such as working at height and the impact to the environment. The new method has demonstrated savings of \$10 million and required half the amount of time in contrast to the traditional method.

Additional entries such as the Semi-Automatic Breaker Rack and the Modified Casings Extractor not only contributed to the improvement of construction methods but also reducing cost and wastage. These new approaches each made valuable contributions to eliminate occupational hazard related injuries and the risks of working at height and in limited spaces.

We are also very pleased that Gammon won the "Innovation and Creativity Award" presented by Hong Kong General Chamber of Commerce at the 2014 Hong Kong Awards for Industries (HKAI) on 18 December 2014.



**Top and Bottom** The Innovation Competition Awards Presentation 2014 was the preeminent vehicle for promoting new ways of thinking and rewarding for exceptional ideas. The winner this year is the Semi-Automatic Breaker Rack.

Quality includes good logistics. For project West Kowloon Terminus Station North 810A, we instigated a Delivery Management System (DMS) in order to avoid overloading the storage capacity of the site and impact on road traffic. The DMS enhances delivery logistics of particularly large projects that have multiple site entry points. Ensuring the materials are delivered to the right place at the right time, we benefit with a smaller number of deliveries over time, reducing road congestion and waiting times.



In 2014, our order book grew 28%. During the year, 38% of our projects were in the public sphere, 37% were quasi-public, and 25% in the private sector.



"The HKSAR has allocated land for the production plant that will accommodate off-site 'cut and bend'. The facility is planned for commissioning in 2017, but we foresee a need for more allocated space."

Patricia Or Executive Director





At Gammon's Sustainability Conference 2014, themed "Creating Shared Value" our invited guests joined us in recognising suppliers' efforts

to bring more sustainable products and ideas into the market place. Our "green" awarded partners were:

- Sustainable Timber Doors
- Cordless & Rechargeable Tools
- Sustainable Timber (Formwork)
- B5 Biodiesel

## **Forward Looking**

We see the shift from the civil market to more residential construction as an opportunity to showcase our capabilities and the growing need for the adoption of new construction methods such as precast and modularisation.

We have accumulated hands on experience in precast construction in both civil and building projects. One example is the use of "Precast Pile Cap Shell"\* in the Tuen Mun – Chek Lap Kok Link — Southern Connection Viaduct Section project, a 4-year design and build project, in place of "cofferdam option" which will reduce 41,000 man-days, across the entire project, increasing productivity, improving quality and lowering maintenance needs over long term.

Therefore, our use of precast allows us to meet the high quality standards for public housing projects, which require large amounts of standard precast items. Since we manage every detail carefully starting from formwork design, and we pay much attention to the production management and quality control of our supply chain demonstrating that Gammon has, not only accumulated hands on experience in precast construction but can deliver consistent high quality precast items.

Enhanced efficiency of the labour

## **Hong Kong Construction Expenditure Forecast for** Public and Private Sectors (2014/15 to 2023/24)



\* E&M Works – Electrical and Mechanical Works \* RMAA Works – Repair, Maintenance, Alteration and Additional Works

A 500-tonne-capacity marine barge lifting precast pile cap shell.

force is critical in supporting the adoption of new technology and innovative methods. Improving efficiencies across the workforce and construction processes is highlighted in Gammon's use of

BIM, as well as the focus we have on multi-skilling in our training. Gammon is dedicated to expanding business in the public housing market by offering innovative and alternate building solutions such as the proposal for precast roof slab and precast lift machine rooms at the Lei Yue Mun Housing Project. In Tuen Mun Area 54 Housing Project, we suggested the use of precast modules for the water meter rooms and precast half-landings for staircases on each floor. The Housing Authority expressed its appreciation of our various suggestions. With our strong competitive advantage, we are optimistic in our future building market.

Souce: Construction Industry Council, Hong Kong

\* Pile Cap Shell modules manufactured in Mainland China are being placed directly on top of the permanent piles and dewatered to support the construction of deep pile caps, without the need of cofferdams or marine false work.

## Partnership Building in the Supply Chain

Challenging the norm continues to reflect in our approach to sustainable procurement. Gammon has worked closely with supply chain partners in various capacities with the aim of increasing the willingness and capabilities of market players to adopt new and innovative methods and products.

Our procurement process combines three focus areas – we proactively examine the materials and products that we purchase, against cost and a set of criteria that include environmental impacts, and safety; we extend this to the life cycle of the products and their reusability; we partner with our suppliers to understand what support is needed, while tapping into the knowledge that exists. This sharing of expertise has helped us to support reliability and greater flow of information. The yellow/white traffic barriers and fatal zone red barriers are now far more durable. After working with our suppliers, we are going to introduce the new barriers to all of our sites in 2015.

The new HDPE material barriers are lighter, tough for transportation and UV exposure, and do not experience joint breakage. The barriers will be recycled at end of life into new barriers making the process cradle-to-cradle. Although the new barriers are a little more costly, in terms of their life cycle costs, however, the new yellow/ white and red barriers are 30% and 40% cheaper than the current PVC barriers respectively.

## E&M Modularisation

Creating Value through Partnering Our first weld-less full modular mechanical plant using components from Pristine – Gammon's E&M modular facility in Dongguan, China, was installed at the China Mobile Global Network Centre project. This project achieved 40% of its overall pipework system delivered using the modular concept. It eliminated the need for large quantities of welding work conventionally required for plant rooms where space is normally congested with large equipment, pipes and cables. Through this E&M modular design, the project removed the need for high-level pipework in the congested area by 50% and the on-site installation time for pipe risers reduced from 4 weeks to 3 days.

We aim to do more modularisation and make it the preferred methodology in all E&M projects in 2015. This off-site prefabrication will not only enhance productivity and efficiency during installation, but it provides a higher degree of quality assurance as well as safety benefits. E&M modularisation is a growing trend for our industry and is playing a key role in sustainable construction.





"E&M Modularisation methods used on our sites vastly enhance safety, resulting in fewer site activities, producing less wastage, all of which contribute to the greater sustainability efforts happening across our projects."

Kevin O'Brien Executive Director

## **ZERO HARM**



## **RESPECT THE WORKFORCE**

- An important aspect of our safety culture is leadership at all levels and across the organisation.
- Being fair and respectful to our workforce while challenging the industry standard on welfare facilities.
- Safety is about positive reinforcement, being fair and respectful and thanking our colleagues for taking the right action.

## **Continuous Improvement**

Our Zero Harm programme is about continuous improvement in all aspects of safety. We reinforce a participatory approach to promote effective safety leadership and challenge how the industry views Health and Safety. The aim is for all our programmes to improve in quality, productivity and our key goal – no fatalities or harm to anyone in our workforce or in the general public related to our projects. This means we look beyond Canteen at Tuen Mun – Chek Lap Kok Link Southern Connection Viaduct Section Project

just the construction site but also at the design and engineering behind a project. It is imperative we design to eliminate risk whilst recognising human error.

A tragic accident, resulting in a fatality, occurred at Nam Cheong site during 2014. This tragedy still occurred despite Gammon having planned and supervised the work carefully. We all have an important lesson to learn that in order to avoid unwanted accidents, we need

"I like the use of real-life video case studies that reflect what we face day-to-day on site. Learning from real-life situations refreshes the safety culture thinking and shapes a positive attitude to visible leadership.

We Can Take The Lead!"

Felix Mak Senior Project Engineer "I Lead" Training (HK and Singapore) 1,327 Staff Trained 483,968 Training Hours 能夏天说:"大日子的小 小林大思达 主拼每二日4241天我は 年这年全然 一是年 大月早年秋 天王年年秋 現在一份有生活同時回見 to observe and understand the behaviours of the workers and the reasons for contradiction of procedures. On our part we will continue our efforts on identifying, managing and working towards eliminating as well as communicating the risks, ensuring our workforce understand procedures are in place because their well-being is of our concern.

Methods used during construction that reduce the occurrence of hazards include: Design for Manufacture (DFM) which allows us to build in a controlled environment, reducing threats to safety. At the Forum project, welding for grid connections was replaced by bolt connections, resulting in a simplified work system, less manpower required, and minimal hot work which enhanced site safety.

A primary aspect of Zero Harm is leadership. The elements of our safety culture, which support leadership development, are being Mindful, Informed, Respectful, Fair, and Learning. All of which provide a rigorous framework for managers to follow. Project Managers and Engineers must understand their roles in how a leader controls or manages the overall project work, which includes health, safety, quality, environment, customers, subcontractors, and site workers.



Over 16,700 Gammon staff, subcontractors' workers, clients and business partners attended the Sixth Stand Down to discuss safety challenges and the ways to improve.

## **Growing our Leadership**

Gammon's leadership in the industry hinges on its construction expertise and ability to envision and effectively implement safe and sustainable construction practices. Leadership, however, does not only come from senior management, but from everyone who can influence others through their daily activities.

Working together with our industry partners through various platforms e.g. the CEO Forum, we are identifying where we can address systemic problems across the industry. We aim to create the right impetus to lead for change.

Managers pursue continuous learning to understand what makes a good leader so as to keep up with significant changes in their responsibilities. For example, from the usual focus on quality and customer, expanded to health and safety and now the broader issues of sustainability. Further, we analyse accidents from all sectors to learn about potential risks and possible strategies to mitigate hazards.

Real action towards implementing these elements include the use of tools such as Building Information Modelling (BIM), a 3D digital design application that goes beyond the design or look of a project. The use of BIM highlights the overall work process to improve the understanding of the sequencing of project work such as clashes, safety concerns and potential risks.

## **Health and Well-being**

It is our mission to build for a high quality of living in a safe and sustainable manner. This means the environment within which our colleagues' work must also be safe, healthy and respectful. With regard to the health and well-being of our workers we provided around 20,000 health checks for our frontline workers and staff in 2014. In addition, our health promotion throughout 2014 included sessions on occupational stretching, cardiovascular disease, first aid on eye injuries, and heat stroke in which 6,708 site workers attended.

We promoted healthy eating throughout 2014 with two site canteens, including Midfield and Tuen Mun – Chek Lap Kok Link projects, being the focus of more vegetables. "To achieve Zero Harm initatives, leaders must be prepared to challenge the industry norm!"



## **Worker Welfare and Respect**

An important aspect of our safety culture is worker welfare. Being fair and respectful means not blaming people for honest mistakes and acknowledging worker's contribution more often. There is a need to improve the perception of construction work and increase the level of respect for the work undertaken by site workers. Further, we encourage site workers to respect their surroundings and thus support them in putting "mindfulness" into action.

We take a people-oriented approach in providing safe and excellent on-site welfare facilities. These facilities serve not only basic needs but encourage closer communication for team building. For example, the Grace Assembly of God Church project team, faced with site constraints, diligently applied the green and caring guidelines with special focus on the need to: maintain very good public relations with neighbourhood; maintain well ventilated workers **Top** The first airconditioned resting area is provided on site to create a comfortable work environment.

**Bottom** Designing clearly demarcated and anti-slip walkways for site workers at Grace Assembly of God Church project in Singapore.





resting area and provision of recreation facilities for break time. Also, in our Po Shan Road project, we initiated a tailor-made "gap protection" between the building and external scaffolding to eliminate safety risks.

## **Prove it Safe**

"Prove it Safe" reinforces our focus of "Bold Commitments", including leadership across the organisation, supporting behaviour change, promoting health and care as well as showcasing technologies throughout the business to ensure the success of our safety culture. This approach emphasises the need for full awareness, questioning old habits and thinking beyond the paperwork so we can achieve mindfulness. Using daily briefings, updates from the supervisor, and dialogue around what everyone is doing, enhances cross-functional efficiencies. The emphasis is upon giving positive reinforcement and thanking our colleagues for taking the right action.

In 2014, we developed the "I Lead" programme which is about developing leadership skills and identifying weak signals and real guys, challenging trade practices, gaining the confidence to make bold commitments and firmly establishing the culture of "Prove it Safe".

"I Promise" was the theme of the Sixth Stand Down, held in November 2014, which focused on individual responsibility, a fundamental element of safety. Over 16,700 Gammon employees, subcontractors' workers, our clients and business partners participated in a focused discussion of safety issues. We require our project teams to have a high level of mindfulness, learn from each lesson, and acquire sufficient knowledge to foster the culture of "Prove it Safe" on our projects.



## **MTR WIL 704**

West Island Line, 704 – Sai Ying Pun and HKU Station, and Sai Ying Pun to Kennedy Town Tunnel Construction Our focused effort in bringing innovative and practical solutions to our clients has synergy with improving health and safety.

For the MTR West Island Line 704 project, although faced with some site constraints, our colleagues, developed some innovative handling methods. To avoid the placement of scaffolding over a busy road, whilst minimising the impact to pedestrians and also the risk of working at height, our team installed a temporary working platform.

Two prefabricated platforms, using the bridge girder, were constructed

on the ground, then lifted to the girder's permanent position. Workers could then work on the platform during bridge construction. Both sides of the bridge and working platform were enclosed by scaffolding and netting to avoid the risk of people or objects falling. Once the bridge construction was completed the working platform was lowered and dismantled.

With careful planning it was possible to use prefabrication of the work platform as a means to improve the overall safety of the work environment.



Two prefabricated working platforms were lifted and set up over a busy traffic road at Pok Fu Lam.



\* Ministry of Manpower, Singapore Government

Accident Incident Rate Hong Kong & Macau Per 1,000 workers 64.3 61.4 60.6 59.9 54.6 51.2 49.7 44.3 40.8 12.6 11.6 9.6 8.4 8.5 7.8 6.7 5.8 6.7 6.4 2007 2008 2009 2010 2012 2013 2014 2005 2006 2011

\* Labour Department, HKSAR Government Industry figure for 2014 not available

Industry\*

Gammon

## **ENVIRONMENT**



## **ENGAGING AROUND SHARED VALUE**

- Pushing for improvements across all business units to create long term benefits.
- The green buildings market is maturing and growing in capacity.
- Collaboration is key in allowing us to grow in a responsible manner.

## **Carbon Reduction**

Our energy usage comes from various sources, but we have moved forward on a variety of projects focusing on one source at a time in order to ensure creation of long term benefits. After carrying out our carbon accounting we found that diesel



usage by plant and equipment is the major contributor. Therefore, we have applied the following strategies to reduce our carbon footprint:

- Reviewing methods and designs to reduce the energy required.
- Choosing the source of energy more wisely by using electricity and B5 biodiesel wherever feasible.
- Pursuing efficiency of the equipment usage and transport.
- Reducing energy demands over the lifecycle (footprint) of what we build through the use of innovative methods.

Gammon uses a comprehensive approach to reduce carbon,

Footprint (tonnes CO<sub>2</sub> equivalent)

Midfield Concourse Works

beginning with the design stage where material inputs are considered along with logistics, waste management and reduction in unnecessary demolition and temporary construction works. The design stage through the use of BIM also reduces project clashes, errors and defects. Further, we can have a big impact through changing, or adopting new construction methods as well as responsible use of equipment, such as resizing generators and use of B5 biodiesel to off-road equipment. In addition, the responsible use and disposal of materials also help to reduce our carbon impacts.



Our Scope 1 and Scope 2 carbon emissions increased in 2014 in tandem with our business growth, but our carbon intensity remained 47.2% below our 2005 baseline.

## **Energy Efficiency**

Over the last year we have continued to look for better methods to our wiser use of resources approach. Instead of using flake or crushed ice in the concrete production process, we piloted the use of 1°C chilled water to establish if this method is feasible, can be energy efficient, works cost effective and scalable. Since the temperature of the aggregate dominates the temperature of the concrete, chilled water was used for both mixing water and the coolant for cooling aggregates. This method has been proven to be more efficient for production, allows better temperature control, less use of electricity as well as 40% reduction in ice usage and a 5% improved mixing efficiency.



The Tseung Kwan O (TKO) office retrofit saw a significant investment of a chiller plant for the office and workshop area, giving an estimated energy saving of 50.6% per year with a payback period of 8 years. Gammon studied the feasibility of replacing the old chiller with a new oil-free chiller CarbonCare®Label Gammon is the only construction company in Hong Kong to receive the CarbonCare®Label, awarded to the entire Group including all operations in Hong Kong (except jointventure projects), Head office in Singapore and steel fabrication yard in Mainland China. Our greenhouse gas emissions have been verified in accordance with ISO 14064-1:2006 by a 3<sup>rd</sup> party.

and in combination with the lighting retrofit, this gives an estimated annual savings of 43%. The TKO upgrade to LED lighting for the whole office, warehouse and workshop area gives an estimated energy saving of 173,040 kWh per year.





The type of work we do determines the energy needed. In 2014, lots of foundation related works were carried out which resulted in an increase in diesel consumption.

## **Waste Minimisation**

Our waste management target of 30% reduction in landfill waste intensity by 2018 is on track. Faced with the challenge of increased landfill charges and the limited recycling facilities in HKSAR, we use a variety of methods, as well as collaborating with suppliers, to reduce our waste. We have set our 2015 target for reuse of 65% temporary work through modularisation. For example, we used system formwork to replace traditional timber formwork during pile cap construction in foundation projects. It means less timber was used and the system formwork itself was reused. In our Po Shan Road foundation project we saved 26% of timber during the pile caps and ground beams. Having the Excavation and Lateral Support (ELS) struts as modules, it not only ensures they are of a higher quality but they eliminate the need for welding whilst allowing quick assembly on site; all adding up to less wastage. In addition to above-mentioned benefits, a single ELS modularised strut can be reused up to five times. "To meet our ambitious target of a 30% reduction in our landfill waste intensity by 2018, we are focusing on the waste streams that we can influence, as well as alternative construction methods that include prefabrication, modularisation and the reuse of temporary formwork rather than depending on recycling."



Tony Small Director

## **HKAEE Award**

Demonstrating Gammon's One-stop-shop construction strategy and capability, the Midfield Concourse project received the Gold Award (Construction Industry) of the Hong Kong Awards for **Environmental Excellence** (HKAEE) 2013. The project was recognised for minimising environmental impacts through the use of an on-site batching plant, a rock crushing plant and a mechanical steel system formwork, thus helping us achieve our aim of sustainable construction.

## **Being Recognised**

The Hong Kong Green Awards (HKGA) 2014, highlighted Gammon's environmental consciousness in its business operations. Gammon received two Gold Awards – the "Green Management Award (Corporate)" and "Green Purchaswi\$e Award (Corporate)" recognising our efforts in green purchasing and green management.





## Green Building — Challenges and Opportunities

The market is maturing and growing its capacity to deliver on Green Buildings. This is not just a trend and Gammon is working to raise awareness about the future of our industry. Through our ongoing collaboration with clients, supply chain and subcontractors we have worked on influencing the industry. As a result we have greater support for our strategic procurement from suppliers and increased ability of the subcontractors to adopt new techniques.

Working in this way we are able, along with our partners, to fulfill the Building Environmental Assessment Method Plus (BEAM Plus) requirements and help build the business in a more sustainable way. Current challenges we face under BEAM Plus v1.2, include, the exclusion of glass and steel from recycled materials, it discourages the industry to further use recycled content in building materials.

Further, the standard specifies a radius of 800 km around the project site in Hong Kong as the source for regional materials. This limited the suppliers can be found, since half of this radius is the South China Sea. We would like to work with the Hong Kong Green Building Council (HKGBC) to redefine the regional sourcing by considering the total weighted distance that project's materials have travelled, from extraction through manufacturing to installation at the project site.

By challenging the standard approach we not only increase our professional capabilities, but also enhance our internal cross-project and crossdepartment understanding of the business. We have 20 qualified BEAM Professionals that support the embedding of this knowledge into different departments. This enables in-house training of specialists, our growth of a sustainable workforce and our long term development.

## **Sustainability Conference**

Gammon held its first Sustainability Conference on 25 March 2014, embracing the theme of "Creating Shared Value". The Conference highlighted how value is being created through the pursuit of sustainable methods such as the use of B5 biodiesel, sustainable timber, resizing generator, BIM and manpower development. Through the way we procure, employ and build, Gammon can help deliver a more resilient industry sector.



## **SENTOSA**

The Sentosa tower and bridge construction involved value engineering solutions as well as an additional eco-trail that would serve as an alternative route for tourists.



For this project on Sentosa Island in Singapore, Gammon constructed three cableway stations including the foundation & structure works, architectural finishes and E&M installations for the stations and foundations for cable car towers. The project also involved a Design and Build construction of a 40m high lift tower and bridge connecting Siloso point to the top of Fort Siloso hill, a World War II historical site.

One of the value engineering efforts for the tower and bridge included the reduction of the number of piers required from 12 to 7 by having wider bridge spans. This also eliminated the construction of associated pile caps resulting in savings of 10 tonnes of steel and 65 cubic metres of concrete. A further benefit was minimsing the ecological impact to the existing site below the bridge.

Gammon further added value to the project by proposing the reuse of the construction access below the bridge by converting it into an "eco-trail" that would serve as an alternative route to the Fort Siloso attraction. Materials for the eco-trail included recycled logs from felled trees as well as 3 tonnes of crushed bricks from a demolished substation. The eco-trail also became a new destination for trees transplanted from other parts of the island. Gammon also worked with a local school, Temasek Polytechnic by holding a competition to design "Eco Zones" for the proposed trail. This included water harvesting and the reintroduction of native species from nearby parts of Sentosa. When the works are completed, the project will give the client added value through a more sensitive interaction with both the local environment and community.

"Prior to work starting, the team engaged in intensive dialogue and co-ordination with our client, consultants, specialist subcontractors, government agencies and island partners for the advance works on site, so that appropriate measures could be implemented for tree

felling, utilities diversion, and the challenging sloped terrains for the station and cableway foundations."

Ramasamy Thangavelu Construction Manager

## **STRONG RELATIONSHIPS**



## **DEVELOPING OUR FUTURE WORKFORCE**

 High-quality staff attraction, retention and structured training are paramount to the success of Gammon and the industry as a whole.

- We are investing in people so we understand their needs and show our care.
- A clear career roadmap and job creation can support upward social mobility.

## **Nurturing the Industry**

At Gammon, investing in people so they understand the business and we understand their needs is important. In December we held a Corporate Social Responsibility (CSR) Forum with members of Top Management and our CSR Working Group, to review our internal programmes. The theme "Workforce Development as a Pathway for Upward Social Mobility" allowed us to reflect upon feedback and guidance for our long term strategy on community engagement and investment. We can create upward social mobility through quality job creation, community and

stakeholder engagement and partnerships. We have established long term partnerships with Tung Wah Group of Hospitals, The Lighthouse Club, Hong Chi Association. Our objective is to understand how our community engagement and strategic investment in workforce development adds value to Gammon, the industry and our community.

An excellent example that demonstrates our strategic investment is our involvement in the Contractor Cooperative Training Scheme (CCTS) of the Construction Industry Council, which has seen a decrease in the drop Formwork Carpenter Training Ground at the Shatin to Central Link (SCL) 1111 Project

out rates of trainees of 41.7% in 2011 to 10% in 2014. Clearly improvements have been made, however, we still see a shortage of trainers and training facilities. We urge the Government to further strengthen the CCTS, with the development of training facilities, securing trainers and reserving budgets in advance. Provision of more training in the trades is required, as presently more than 70% of workers in the industry do not possess trade certificates. Gammon is extending its training from 16 trades to 40 while attracting younger workers to join the industry.



Gammon's CSR Forum enables us to explore how to create shared value for both our strategy and our communities.

We suggest a four-year trade apprenticeship programme, which focuses on the trades with serious ageing problem, to train up skilled workers. Also, professional qualification will be granted to those who complete the programme. Using the existing CCTS, as well as the self-performing and multi-skilling approaches, we can achieve a workforce that buffers the cyclical boom or bust of the industry.

## **Listening to our People**

By adopting the People Dashboard system, we have real time information on our key human resources indicators. Directors and project leaders can view a holistic picture of where the company stands on Key Performance Indicators, thus facilitating the decision-making and staff planning processes.

An important component of engagement is knowing when and how to communicate. We have added a cross-project champion who acts as a bridge – to enhance communications on how the business is doing; to listen to feedback from on-site personnel; and to support team building, so as to understand the key elements for staff retention.

To support and encourage young and experienced talent, we create platforms to enable and encourage employees to be a part of our success such as Gammon's Young Professionals Group (YPG) and Next Generation Stakeholder Panel. This year, we created a Human Resources Helpline for all our employees in Hong Kong in order to enhance the provision of timely support on human resources issues such as employment policies, terms and conditions, and available training and development opportunities.

We engage our workforce and gather their feedback through various channels, including face-toface dialogue between workers and management. The Human Resources Team identifies issues and needs, then proposes and develops relevant measures. This is an example of where we break from the norm as we value the face-to-face interaction with our colleagues in order to build a lasting relationship.



A Caring Ambassador at Singapore Mayflower Station project assists a wheel chair bound resident to cross the road.

Gammon Social Performance	2013	2014
Graduate Recruitment		
University	117	116
IVE	0	78
Technician & Craft Apprentice Recruitment (Hong Kong)		
Technician Apprentice	65	58
Craft Apprentice	25	44
Training Hours per Staff	22.3	21.2
Volunteer Hours	4,973.5	3,657.5
Number of Community Events	126	106
Scholarships	50	43



People dashboard







**Top** "Building a New Dimension" was the theme of our annual cocktail reception where 3D printing models were on display, showcasing Gammon's aspiration to achieve technology advancement.

*Middle* An "Occupational stretching exercise and manual handling" health promotion workshop was held for the Construction Services Division at Tseung Kwan O on 24 June 2014.

**Bottom** Members of the Pristine office participated in a charity bazaar of International Working Women's Day in Dongguan on 4 March 2014. Promotion Gammon's Tseung Kwan O (TKO) Canteen in Technology Park

Canteen in Technology Park is offering "More Vegetable", "Red Rice" and "3 Less"\* dishes in their menu.

Their menu indicates which dishes offer these healthier choices and the Canteen has joined the EatSmart programme of the Department of Health.

## **Caring for our People**

Workforce attraction, retention and their development are important issues for us. We need to encourage good quality new blood to join our technical and professional teams, while ensuring their readiness through ongoing skills acquisition, mentoring and training.

To understand what our staff wants from their employment, Gammon conducted a Talent Attraction & Retention Survey in December 2014 that targeted young professionals, management staff and HR employees. Beyond the obvious need for fair and equitable remuneration, employees are motivated by a variety of needs. These findings help us to review the approaches that relate to people recruitment and retention. We successfully assigned mentors to all the new joiners in Hong Kong and Shenzhen from June 2014 onwards and Singapore from September 2014. To ensure the quality of the mentorship programme, mentors receive a briefing from the HR Team. New graduates employed are reviewed by our Quantity Surveyor, HR and Engineering Training Committees to ensure they have acquired solid industry skills. Our HR Team reaches out to new joiners through regular visits to understand their needs while providing timely advice. As a result we aim to retain a high quality workforce while recognising our employees for their strong professionalism.

\* "3 Less" dishes are prepared with less salt, oil and sugar.

## CRAWLER CRANE OPERATOR TRAINING

Training brings benefits beyond fulfilling our job duties and also creates extra value in our personal lives.





Crawler crane operator training is subsidised by the Construction Industry Council (CIC) while the venue and programme are provided by Gammon. This training was delivered to 53 crane operators who received a 52-day training, including theory and practice, by a Gammon trainer, Lee Chun Kwong, who has 20 years of industrial experience. 52 of the trainees obtained trade certificates upon successful completion of the training and passing of their test.

Besides construction workers, this programme also attracted applicants from other industries. Being equipped with a professional licence to operate a heavy vehicle, the trainees up-skilled their capabilities. Our trainee, Kwok Wai Lung, was pleased to leave his prior career in the logistics industry and join the "family business" since his father and elder brother are also working in Gammon. Another trainee, Chan Kin Ming Wayne, was a chefs' assistant prior to joining the programme and welcomed this job opportunity as he now has more stable work, better work-life balance and salary package.

**Healthy** 

Eating

## DRIVING IMPROVEMENT THROUGH OUR GREEN AND CARING SITE COMMITMENT



*G&C aims to motivate for change through positive reinforcement of worker welfare, rewarding good practices and celebrating with sites when winning the Green Flag.* 

Green and Caring (G&C) initiatives need to be practical and consistent for ease of implementation and is thus a living system that results from and delivers continuous improvement. We deliberately challenge trade practices and drive for improvement. The G&C programme has been successful in its efforts to improve respect, welfare and safety in combination with positive environmental impacts since 2011.

The G&C has matured significantly and has become a strategic focal point for aligning and communicating expectations, positioning the welfare facilities as an essential component for improvements across the industry, increased shared learning as well as benchmarking. Through showcasing, Gammon has the opportunity to demonstrate a positive industry image.

The G&C uses self-assessment against a set of criteria that ensures high standards of housekeeping, achieving greater resource utilisation, efficiency and conservation. This year we reviewed the criteria to improve its application while addressing project specific challenges. In addition, we updated the guidance to strengthen the implementation of our Bold Commitments and Caring Culture.



The G&C programme has a set of criteria against which each site is assessed and which in turn helps to drive significant improvements in Health, Safety and the Environment.

**Caring Culture** 

Our G&C sites improve

the environment of rest

and chairs and toilets.

areas with air-conditioning, drinking water, vending machines, recycle bins, tables



Our sites have clear Access & Egress: paving, well defined barriers, clear route signs, separation of people from equipment and hazards.





## **Environmental Awareness**

Our G&C commitment also drives changes in energy saving as with the use of white reflective paint on all our container offices.

### Innovation

Modular grouting station, sturdier and reusable modified container, provides a clean, safe and controlled environment.



For more information about G&C:

www.gammonconstruction.com/en/html/highlight/environment01.html

# CREATING OPPORTUNITIES FROM CONSTRAINTS



## SHATIN TO CENTRAL LINK CONTRACT NO. 1111 — HUNG HOM NORTH APPROACH TUNNELS (GAMMON-KADEN JOINT VENTURE)

SCL1111 project was awarded by the MTR Corporation Limited commencing in December 2012 with the project sum of HK\$3.4 billion. The project involves the construction of two tunnels over 1km long, connecting the East Rail Line and Ho Man Tin Station to Hung Hom Station. Through the fully use of three innovative methods, Gammon resolves different engineering challenges in a safe and sustainable manner.

## **Project Savings**

The challenges and constraints faced in this project inspired both construction and environmental innovation by encouraging closer engagement with our stakeholders. We offered new approaches from the original design, which provided noticeable advantages to both internal and external stakeholders.

Through adopting the non-demolition and non-underpinning schemes as well as the travelling formwork, the project has significantly reduced the use of materials, workforce, plant and equipment, in comparison to the original scheme. By not altering existing structures, we were able to gain better control of costs and improved cash flow.



371 days Less Construction Days



180 nights Less Night Works



9,510 tonnes Less Spoil Generated



**1.8** Project Accident Incident Rate per 1,000 workers



### Highlight 1 🕨



Highlight 2 📐



Highlight 3 🕨



#### Non-Demolition Scheme (Bridge Saving Design)

By eliminating the need to demolish two existing bridges over the East Rail Line around Chatham Road North, the deck and west abutment of two existing bridges can be retained and the east abutment can be integrated into the permanent tunnel construction. The creative design saved time and cost meanwhile reducing noise and risks.

#### Non-Underpinning Scheme (Pile Retaining Design)

The alternative design was the realignment of the North South Corridor tunnel away from the existing Hung Hom Bypass Pier by a few hundred milimetres, to allow enough space for the tunnel wall and avoid the entire underpinning works\* without affecting the existing pier. The new design helped to minimise the generation of construction waste and save tonnes of construction materials further reducing, by tonnes, the embodied carbon emissions.

#### **Overhead System Formwork (Travelling Steel Formwork)**

The travelling steel formwork facilitated the wall construction of the future Noise Enclosure at Ho Man Tin area for North South Corridor tunnel. This travelling formwork addressed the restricted site condition of being adjacent to operating East Rail Line. Using the travelling formwork, which contains an in-built hoarding system, can meet a higher safety and efficiency standard.

### Minimising the Impact to the Community



### **Community Relations**

The team emphasised on-site stakeholder engagement, a public relations officer is delegated to handle enquiries and complaints from the public. Considering this project is located in a busy corridor connecting the prime areas of Hong Kong, the non-demolition scheme successfully reduced the implementation of Temporary Traffic Arrangements by 22 months, thus minimising inconvenience caused. The reduction in works minimised pollution and noise disturbances to the nearby residents, especially during night time.



#### **Environmental Footprint**

The three innovative measures have significantly reduced the materials used e.g., steel, concrete and timber. The reusability of travelling formwork enabled us to save resources and reduce embedded carbon emissions. Such waste reduction also cut down the number of trucks for material delivery and disposal. This reduced the project's carbon footprint and air pollution generated by the fleet.



Safer Working Environment Non-demolition scheme eliminated a significant amount of utilities diversion, non-underpinning scheme reduced risks through clear delineation between the tunnel structure and the existing pier. The travelling steel formwork minimised the manual handling for dismantling of conventional formwork and its repositioning. These construction methods reduced the duration that the teams were exposed to working at height, risks associated with heavy lifting, moving plant and falling objects.

## Assurance Statement



## **ASSURANCE STATEMENT**

## SGS STATEMENT ON ASSURANCE Gammon Sustainability Report 2014

#### NATURE AND SCOPE OF THE ASSURANCE

SGS Hong Kong Limited (hereinafter refered to as "SGS") was commissioned by Gammon Construction Limited (hereinafter called "Gammon") to conduct an independent assurance of the *Sustainability Report 2014* (hereinafter called "the Report"). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the text and 2014 data in accompanying tables contained in the Report. Data and information of subsidiaries of Gammon were included in this assurance process, which covered China, Hong Kong, Macau and Singapore.

The information in the Report and its presentation are the responsibility of Gammon. SGS has not been involved in the preparation of any of the material included in the Report. Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification with the intention to inform all Gammon's stakeholders.

The SGS protocols are in accordance with internationally recognized guidance, including the Principles contained within the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines (2011) for accuracy and reliability and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

This Report has been assured at a moderate level of scrutiny using our protocols for:

- Evaluation of content veracity;
- AA1000 Assurance Standard (2008) Type 1 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2008);
- Evaluation of the report against the Global Reporting Initiative Sustainability Reporting Guidelines G3.1 (2011); and
- Evaluation against the AA1000 Stakeholder Engagement Standard (AA1000SES) (2011).

The assurance comprised a combination of pre-assurance research, interviews with relevant management and employees; documentation and record review.

Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

#### STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from Gammon, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with Lead Auditor of SA 8000, ISO 26000, ISO 14001 and OHSAS 18001; ISO14064 Lead Verifier and GRI Trainer in Sustainability Reporting.

#### ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the information and data contained within the Report verified is accurate, reliable and provides a fair and balanced representation of Gammon sustainability activities in 2014. Some statements and data within the scope were not assured due to credibility of third party information such as greenhouse gas emission, industrial & government figures and timescale allowed for assurance.

The assurance team is of the opinion that the Report can be used by the Reporting Organisation's Stakeholders.

We believe that the organisation has chosen an appropriate level of assurance for this stage in their reporting.

#### AA1000 ACCOUNTABILITY PRINCIPLES (2008) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity:	Stakeholder mapping and engagement process is enhanced compared to last report.
Materiality:	Material issues are clearly identified and stated.
Responsiveness:	Stakeholder interests and expectations are properly responded, but should be reported in
	accordance with proity.

### GLOBAL REPORTING INITIATIVE REPORTING GUIDELINES (G3.1 2011) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Principles:	Material issues could be prioritized in a clear manner so that the clarity of stakeholder interests and expectations could be demonstrated.
Standard	
Disclosures:	It was found satisfactory.
Indicators:	Apart from fulfilling application criteria, it would be better to consider incorporating all
	performance indicators based on the results of materiality test.

The data collection method was comprehensive, reliable and accurate. In our opinion, the Report fulfills the content and quality criteria for GRI G3.1 Application Level C+.

## AA1000 STAKEHOLDER ENGAGEMENT STANDARD (2011) CONCLUSIONS, FINDINGS AND RECOMMENDATION

Stakeholder engagement has been improved, but Gammon should pritorize their stakeholder interests and expectations and report in a clear manner.

Signed: For and on behalf of SGS Hong Kong Limited

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Ben TSANG, Senior Director, China and Hong Kong Systems and Services Certification 25 March 2015 WWW.SGS.COM Patrick LEUNG, Lead Assuror Systems and Services Certification



AA1000 Licensed Assurance Provider

## **Key Performance Indicator**

In preparing the 2014 Report "Challenging the Norm", we have made reference to the Global Reporting Initiative (GRI) G3.1 framework and the Construction and Real Estate Sector Supplement for certain sections and performance indicators. We selected key indicators as listed below to provide readers with a quick understanding of our group-wide performance<sup>^</sup>. Comments on the scope and completeness of our reporting can be found in the Independent Verification Statement under online version – 2014 Sustainability Report. www.gammonconstruction.com

GRI Reference	Performance Indicators	Units	2010	2011	2012	2013	2014
Safety							
CRE6	Organisation operating in verified compliance with OHSAS 18001 <sup>1</sup>	%	100	100	100	100	100
LA7	Fatalities	number	0	5	0	1	1 (HK)
LA7	Accident/incident rate <sup>2</sup>	per 1,000 workers	5.4	11.3	6.9	6	5.5
Economi	ic						
EC1	Group turnover (by region) Mainland China Singapore Hong Kong & Macau	US \$millions US \$millions US \$millions US \$millions	1,215 0 212 1,003	1,610 0 128 1,481	1,638 0 166 1,471	1,757 0 165 1,592	2,252 0.1 195 2,057
	Active project site	number	98	99	100	117	109
EN1, EN26	Sustainable sourced timber, all sources	% value	85	95	99	97	99
EN26	Forest Stewardship Council (FSC) certified	% value FSC	100	100	100	100	100
Social							
LA1	Total monthly-paid staff (by location) Mainland China Singapore Hong Kong & Macau	number number number number	3,474 384 465 2,625	3,832 386 374 3,072	4,643 423 448 3,772	5,069 507 502 4,060	5,397 517 494 4,386
LA1	Total daily-paid workers (all locations) Gender, monthly-paid staff <sup>3</sup>	number % male % female	2,333 81 19	2,067 81 19	2,440 85 15	3,091 83 17	3,665 84 16
LA1	Total sub-contractor workers (all locations) Hong Kong Singapore	number number number	5,943 4,970 973	9,411 8,923 488	10,493 9,493 1,000	7,528 7,015 513	10,536 9,711 825

GRI Reference	Performance Indicators	Units	2010	2011	2012	2013	2014
Social co	ntinued						
LA1	Employee by contract type <sup>4</sup>	% permanent % contract	-		77.3 22.7	74.8 25.2	73.4 26.6
LA1	Employee by management class <sup>4</sup>	% director	_	_	0.3	0.3	0.2
		% managerial	_	_	6.3	5.8	5.7
		% professional	_	_	14.9	13.8	13.2
		% supervisory	_	_	13.3	10.9	10.6
		% technical	_	_	54.8	58.8	61.3
		% others	_	_	10.5	10.4	9.1
	Graduate recruitment <sup>3,4</sup>	number	120	105	135	117	116
	Technician apprentice recruitment <sup>3,4</sup>	number	60	51	73	65	58
LA10	Training hours per employee <sup>3,4,5</sup>	hours/employee	21.3	22.3	22.8	22.3	21.2
LA10	Training by gender <sup>4,5</sup>	% male	_	_	88.2	85.8	85.7
		% female	-	_	11.8	14.2	14.3
LA10	Training by management class <sup>4,5</sup>	% director	_	_	0.4	0.7	0.6
		% managerial	_	_	14.7	16.6	13.6
		% professional	-	_	27.8	26.0	27.3
		% supervisory	-	_	22.0	17.7	16.7
		% technical	-	_	30.4	33.7	36.3
		% others	_	_	4.7	5.4	5.5
SO1	Volunteer hours	hours	4,741	5,226	5,225	4,974	3,658
SO1	Number of community event	number	93	106	109	126	106
CRE8	Sustainability certification, rating and labelling schemes for new construction	number of project	17	28	32	53	52
PR5	Yearly customer satisfaction	%	100	100	100	100	100
	very satisfied	%	25	18	17	17	To be
	satisfied	%	75	72	70	63	update ir
	neutral	%	0	8	10	16	Aug-2015
	dis-satisfied	%	0	2	3	4	Aug-2015

GRI Reference	Performance Indicators	Units	2010	2011	2012	2013	2014
Environr	nent						
CRE4, EN16	Carbon dioxide equivalent (CO <sub>2</sub> e) emissions (Scope 1 & Scope 2) <sup>*6,7</sup>	kg/HK\$1m turnover	7,512	7,564	7,434	6,458	6,231
EN17	$CO_2$ e from air travel <sup>8</sup>	tonnes	520	331	254	289	245
EN4	Electricity intensity*9	kWh/HK\$1m turnover	2,194	3,229	3,708	3,569	2,962
EN3	Diesel intensity	litre/HK\$1m turnover	2,180	1,864	1,692	1,386	1,510
EN3	Petroleum intensity	litre/HK\$1m turnover	58.3	89.8	105.2	96.2	93.6
CRE1, EN5	Energy electricity for office <sup>*10</sup>	kWh/m <sup>2</sup> /month	16.7	15.7	15.3	15.3	13.3
EN8	Municipal water intensity*	m <sup>3</sup> /HK\$1m turnover	89.0	81.1	97.9	90.6	84.6
EN10	Recycle water	m <sup>3</sup> % of recycle	339,656 29	2,508,253 71	2,019,264 62	2,129,860 63	1,337,999 47
EN22	Total waste landfilled <sup>* 11</sup> Hong Kong Total waste incinerated	tonnes	25,754	33,100	37,147	32,283	37,791
	Singapore	tonnes	1,343	767	286	531	2,030
EN22	Total waste recycled exclude rebar/ steel (divert from landfill)	tonnes %	2,370 8	2,107	2,759 7	2,160	3,880 9
EN22	Total waste recycled include rebar/ steel (divert from landfill)	tonnes %	11,834	10,818	22,160	9,985	22,983
EN22	Rebar/steel recycled	kg/HK\$1m turnover tonnes	998 9,465	694 8,711	1,519 19,401	571 7,825	1,087 19,103
EN1	Major materials used (rebar/steel)	tonnes	81,339	73,662	82,890	68,803	86,841
EN22	Total inert material to public fill	tonnes	797,607	954,641	1,507,732	963,632	1,093,124
EN22, EN2	Total direct inert material reuse Hong Kong Singapore	% of reuse tonnes tonnes tonnes	31 364,728 364,554 174	,	47 1,350,304 1,331,386 18,918	52 1,048,959 1,031,646 17,314	42 779,517 711,071 68,446
EN28	Compliance convictions	number	0	1 (HK)	1 (HK)	1 (HK)	0
EN6	Renewable electricity generated <sup>12</sup>	kWh	3,760	8,008	7,992	9,518	6,543

Footnotes:

1. OHSAS 18001 certification does not include JV projects.

2. Excluded first aid case.

3. Hong Kong Group only.

4. Excluded sub-contractor number.

5. The training record is for Hong Kong & Macau and excluded the daily-paid worker.

6. Significant change has been made for adding construction diesel emission factor and Towngas mission factor since 2012.

7. Include the office electricity data into the total Carbon Dioxide equivalent emissions calculation.

8. Only business air travel was counted.

9. Data source from CLP and HKE electricity bills.

10. Only offices with the electricity meter reported the office electricity data.

11. Non-hazard waste.

12. Renewable energy include solar power and wind power.

^ No significant changes in the scope and boundary from the previous report.
\* Additional data collected, principally due to year-end account reconciliation.

† Gender: male

Date	Name of Award	Issued by	Name of Project/Division
GRI Reference	e 2.10 – 2014 Award List		
28 February 2014	5 years+ Caring Company logo	The Hong Kong Council of Social Service	Gammon Construction Limited
16 March 2014	Construction Industry Safety Award Scheme 2013 – 2014 Bronze Prize in Civil Engineering Sites Category	Labour Department	Shatin to Central Link Contract 1111 – Hung Hom North Approach Tunnels
16 March 2014	Construction Industry Safety Award Scheme 2013 – 2014 Gold Prize in Civil Engineering Sites – Sub-contractors Category	Labour Department	Shatin to Central Link Contract 1111 – Hung Hom North Approach Tunnels (Foundation Works)
16 March 2014	Construction Industry Safety Award Scheme 2013 – 2014 Bronze Prize, Building Constuction (Private Contract)	Labour Department	Central Police Station Conservation and Revitalisation Project
16 March 2014	Construction Industry Safety Award Scheme 2013 – 2014 Bronze Prize, Building Construction S/C	Labour Department	Contract No. SS X301 – Redevelopment of Kwun Tong Swimming Pool Complex and Kwun Tong Recreation Ground
16 March 2014	Construction Industry Safety Award Scheme 2013 – 2014 Bronze Prize in Safety Teams Category	Labour Department	Contract No. HY/2012/07 Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section
10 April 2014	2014 Pride in Performance Awards – Category Award Winner (Innovative Idea)	Jardine Matheson Limited	Redevelopment of The Forum, Exchange Square Superstructure (GMP) Contract
23 April 2014	ERB Manpower Developer Award Scheme – Manpower Developer	Employee Retraining Board	Gammon Construction Limited
2 May 2014	Hong Kong Awards for Environmental Excellence (HKAEE) – Construction Industry (Gold Award)	Environmental Campaign Committee	Contract P533 Midfield Concourse Works
2 May 2014	Hong Kong Awards for Environmental Excellence (HKAEE) – Green Innovation Award (Certificate of Merit)	Environmental Campaign Committee	Gammon Construction Limited
29 May 2014	Considerate Contractors Site Award Scheme 2013 Public Works Sites – RMAA Works CCSA – Bronze	Development Bureau & Construction Industry Council	Contract No. 05/HY/2012 Management and Maintenance of High Speed Roads in New Territories East and HK Island (2013 – 2019)

Date	Name of Award	Issued by	Name of Project/Division
GRI Referen	nce 2.10 – 2014 Award List cor	ntinued	
29 May 2014	Considerate Contractors Site Award Scheme 2013 Non-Public Works Sites – New Works CCSA – Bronze	Development Bureau & Construction Industry Council	Site Formation & Foundation Works for Proposed Residential Redevelopment at No. 24 Po Shan Road, Hong Kong
29 May 2014	Considerate Contractors Site Award Scheme 2013 Non-Public Works Sites – New Works CCSA – Silver	Development Bureau & Construction Industry Council	Proposed Redevelopment of The Forum, Exchange Square Superstructure (GMP) Contract
6 June 2014	Quality Building Award Hong Kong Non-Residential (New Building) Category – Grand Award	hkie, hkca, hkicm, hkih, hkis, hkqaa, ifma, reda	CIC Zero Carbon Building
9 July 2014	Construction Safety Forum and Award Presentation Ceremony Best Method Statement Golden Award	Occupational Safety & Health Council	Contract P533 Midfield Concourse – E&M Works
9 July 2014	Construction Safety Forum and Award Presentation Ceremony Best Safety Enhancement Program for Working at Height Golden Award	Occupational Safety & Health Council	Express Rail Link, Contract 810A – West Kowloon Terminus Station North
9 July 2014	Construction Safety Forum and Award Presentation Ceremony Outstanding Scaffolder Merit Award	Occupational Safety & Health Council	Express Rail Link, Contract 811B – West Kowloon Terminus Approach Tunnel (South)
16 July 2014	Hong Kong Awards for Environmental Excellence Class of Excellence Wastewi\$e Label	Environmental Campaign Committee	Contract No. 3/WSD/11 – Construction of Pressure Management and District Metering Installations in Western, Central, Eastern, Sai Wan, Kowloon West and Tsuen Wan East Major Fresh Water Supply Zones
28 Nov 2014	HR Excellence Awards 2014 Grand Award of the Year	Hong Kong Institute of Human Resource Management	Gammon Construction Limited
28 Nov 2014	HR Excellence Awards 2014 Strategic HR Category – Excellence Business Partner Award	Hong Kong Institute of Human Resource Management	Gammon Construction Limited
12 Dec 2014	Hong Kong Green Awards 2014 Sustained Performance (5 years+) – Corporation	Green Council	Gammon Construction Limited
12 Dec 2014	Hong Kong Green Awards 2014 Green Purchaswi\$e Award (Corporate) – Gold	Green Council	Gammon Construction Limited
12 Dec 2014	Hong Kong Green Awards 2014 Green Management – Gold	Green Council	Gammon Construction Limited

## **GRI** Content Index

Global Reporting Initiative (GRI)'s G3 Guidelines constitute a set of universal sustainability reporting indicators. The framework presents reporting areas and principles for organisations to evaluate on sustainability issues and performance.

The table shows where to find information that correspond with each GRI Indicator and provide indications of how the content of the 2014 report are in line with the GRI index.

1.	Strategy and Analysis	
Profile Disclosure	Disclosure	Location of Disclosure
1.1	Statement from the most senior decision-maker of the organisation.	P.1
2.	Organisational Profile	
Profile Disclosure	Disclosure	Location of Disclosure
2.1	Name of the organisation.	Inside front cover
2.2	Primary brands, products, and/or services.	Inside front cover
2.3	Operational structure of the organisation, including main divisions, operating companies, subsidiaries, and joint ventures.	Inside front cover
2.4	Location of organisation's headquarters.	Back cover
2.5	Number of countries where the organisation operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report.	Back cover
2.6	Nature of ownership and legal form.	Back cover
2.7	Markets served (including geographic breakdown, sectors served, and types of customers/beneficiaries).	P.5
2.8	Scale of the reporting organisation.	Inside front conver. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
2.9	Significant changes during the reporting period regarding size, structure, or ownership.	No changes
2.10	Awards received in the reporting period.	P.1, P.7, P.12, P.13 and P.14
3.	Report Parameters	
Profile Disclosure	Disclosure	Location of Disclosure
3.1	Reporting period (e.g., fiscal/calendar year) for information provided.	Inside front cover
3.2	Date of most recent previous report (if any).	Refer to the 2013 Sustainability Report. www.gammonconstruction.com
3.3	Reporting cycle (annual, biennial, etc.).	Inside front cover

3.	Report Parameters continued	
Profile Disclosure	Disclosure	Location of Disclosure
3.4	Contact point for questions regarding the report or its contents.	Back cover
3.5	Process for defining report content.	P.2
3.6	Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers). See GRI Boundary Protocol for further guidance.	Scope of the report. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
3.7	State any specific limitations on the scope or boundary of the report (see completeness principle for explanation of scope).	No specific limition
3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period and/or between organisations.	Inside front cover
3.10	Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement (e.g.,mergers/acquisitions, change of base years/periods, nature of business, measurement methods).	No significant change
3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.	No significant changes in the scope and boundary. Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report for the update of the measurement methods. www.gammonconstruction.com
3.12	Table identifying the location of the Standard Disclosures in the report.	Refer to the "GRI Index Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
4.	Governance, Commitments, and Engagemen	t
Profile Disclosure	Disclosure	Location of Disclosure
4.1	Governance structure of the organisation, including committees under the highest governance body responsible for specific tasks, such as setting strategy or organisational oversight.	P.2 of online version – 2013 Sustainability Report. P.7 of online version – 2004 Sustainability report. www.gammonconstruction.com
4.2	Indicate whether the Chair of the highest governance body is also an executive officer.	P.7 of online version – 2004 Sustainability report. www.gammonconstruction.com
4.3	For organisations that have a unitary board structure, state the number and gender of members of the highest governance body that are independent and/or non-executive members.	P.6 of online version – 2008 Sustainability report. www.gammonconstruction.com The gender of member didn't mention because is not material.
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	P.2, P.17 and P.18
4.14	List of stakeholder groups engaged by the organisation.	P.2
4.15	Basis for identification and selection of stakeholders with whom to engage.	P.2

Indicator	Disclosure	Location of Disclosure
Economic P	erformance	
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.	Inside front cover, P.5. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EC2	Financial implications and other risks and opportunities for the organisation's activities due to climate change and other sustainability issues.	P.2, P.4 and P.6
EC4	Significant financial assistance received from government.	No financial assistance received from government.
Indirect Eco	nomic Impacts	
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement.	P.15, P.20 and P.21
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts.	P.15, P.20 and P.21
Environ	mental	
Indicator	Disclosure	Location of Disclosure
Materials		
EN1	Materials used by weight, value or volume.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN2	Percentage of materials used that are recycled and reused input materials.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
Energy		
EN3	Direct energy consumption by primary energy source.	P.13. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN4	Indirect energy consumption by primary source.	P.13. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
CRE1	Building energy intensity.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN5	Energy saved due to conservation and efficiency improvements.	P.12, P.13. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	P.12, P.13. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com

Indicator	Disclosure	Location of Disclosure
Water		
EN8	Total water withdrawal by source.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN10	Percentage and total volume of water recycled and reused.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
Emissions, Eff	luents and Waste	
EN16	Total direct and indirect greenhouse gas emissions by weight.	Inside front cover, P.12. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN17	Other relevant indirect greenhouse gas emissions by weight.	P.12. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
CRE4	Greenhouse gas emissions intensity from new construction and redevelopment activity.	P.12. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	P.12 and P.13
EN22	Total weight of waste by type and disposal method.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	Not transported, imported, exported or treated waste deemed hazardous under Basel Convention Annex I, II, III and VIII.
Products and	Services	
EN26	Initiatives to enhance efficiency and mitigate environmental impacts of products and services, and extent of impact mitigation.	P.5, P.7, P.12, P.13 and P.15
Compliance		
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
Social: La	abor Practices and Decent Work	
Indicator	Disclosure	Location of Disclosure
Employment		
LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	Inside front cover. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com

Indicator	Disclosure	Location of Disclosure
Labor/Mana	agement Relations	
LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.	No significant change
Occupation	al Health and Safety	
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region and by gender.	Inside front cover, P.1, P.11. Also refer to the "Key Performance Indicator Table" unde online version – 2014 Sustainability Report. www.gammonconstruction.com
CRE6	Percentage of the organisation operating in verified compliance with an internationally recognised health and safety management system.	OHSAS18001. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.	P.9
Training an	d Education	
LA10	Average hours of training per year per employee by gender, and by employee category.	P.17. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
Social: S	Society	
Indicator	Disclosure	Location of Disclosure
Local Comr	nunities	
SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	P.17. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
SO9	Operations with significant potential or actual negative and positive impacts on local communities.	P.15, P16, P.18, P.20 and P.21
SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.	P.15, P16, P.18, P.20 and P.21
Compliance	2	
SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.	No significant fines and number of non-monetary sanctions for non-compliance with laws and regulations.
Social: F	Product Responsibility	
Indicator	Disclosure	Location of Disclosure
Product and	d Service Labelling	
CRE8	Type and number of sustainability certification, rating and labelling schemes for new construction, management, occupation and redevelopment.	Refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	P.2. Also refer to the "Key Performance Indicator Table" under online version – 2014 Sustainability Report. www.gammonconstruction.com



## HONG KONG SAR

Headquarters

#### **Gammon Construction Limited**

28th Floor, Devon House, Taikoo Place, 979 King's Road, Hong Kong Tel: +852 2516 8823 Fax: +852 2516 6260

### **SINGAPORE**

#### **Gammon Pte. Limited**

Co Reg No: 198001094M 29 International Business Park #06-05, Acer Building, Tower B, Singapore 609923 Tel: +65 6722 3600 Fax: +65 6722 3601

### MACAU SAR

## Gammon Building Construction (Macau) Limited

Registered Office: Avenida da Praia Grande, n°429, 25° andar-D, em Macau Macau P.O. Box 6623

### CHINA

#### **Gammon Construction (Shanghai) Limited**

#### Shanghai

Room 3105B, Kerry Parkside, 1155 Fangdian Road, Pudong, Shanghai 201204, People's Republic of China Tel: +86 21 6845 7590 Fax: +86 21 6845 7270

#### Shenzhen

Branch Office 8/F Tower A, Sunhope E Metro, 7018 Caitian Road, Futian District, Shenzhen 518035, People's Republic of China Tel: +86 755 8869 7878 Fax: +86 755 8869 7800

We value and encourage dialogue on our reporting mechanism. Feedback provides insight that helps us to better communicate what is important and of interest to our stakeholders. We encourage questions or comments by contacting environment@gammonconstruction.com.

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