

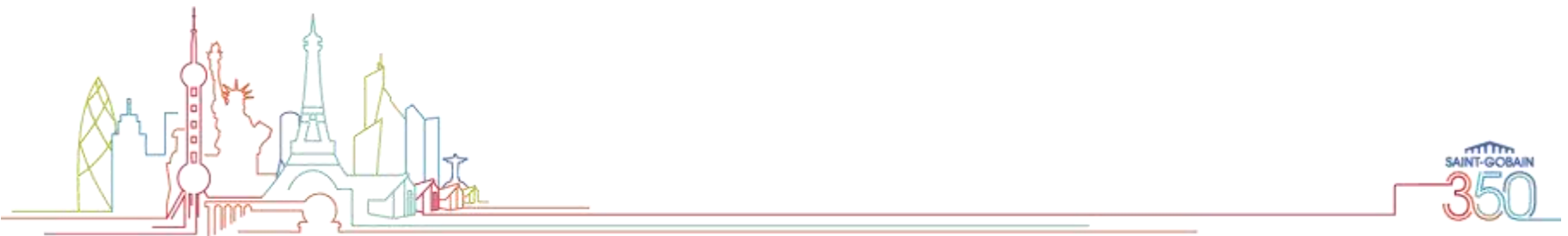
# my comfort

by Saint-Gobain

## **Multi-Comfort buildings**

For your comfort, health & wellbeing

Tom Cox Research and Development Manager, Saint-Gobain UK



SAINT-GOBAIN

350

**Our aim to be the world leader in creating Sustainable Habitats has driven us to launch the Multi-Comfort building concept**

**Incorporating Passive House design, it's a way of designing and building sustainable, comfortable and healthy home and working environments**



Typically, we spend just  
10% of our time outside





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We spend 90% of our time  
Inside buildings or our vehicles





**What if, rather than just minimising negative impacts, buildings can be designed and built to have a positive impact on people and the environment?**



An unparalleled breadth  
and depth of network

**Graham**  
The Plumber's Merchant

**ideal**  
IDEAL BATHROOMS

**Ashworth**

**CTD**  
ceramic tile distributors

**MINSTER**  
ROOFING AND ROCKLINE

**PASQUILL**  
SAINT-GOBAIN

**ADFOR**

**GLASSOLUTIONS**

**QUANTUM**

**AVANCIS**

**Ecephon**  
SAINT-GOBAIN

**Celotex**  
Insulation Specialists

**weber**  
SAINT-GOBAIN

**International  
TIMBER**

**International  
Decorative Surfaces**

**British Gypsum**

**isover**  
SAINT-GOBAIN

**J.P. CORRY  
GROUP**

**Gyproc**  
SAINT-GOBAIN

**MINSTER**  
ROOFING AND ROCKLINE

**Artex**

**SAINT-GOBAIN  
PERFORMANCE PLASTICS**

**NORTON**  
SAINT-GOBAIN

**vetrotech**  
SAINT-GOBAIN

**FRAZER**

**PASA**  
SAINT-GOBAIN

**Artex**

**SAINT-GOBAIN  
PERFORMANCE PLASTICS**

**NORTON**  
SAINT-GOBAIN

**vetrotech**  
SAINT-GOBAIN

**SAINT-GOBAIN  
ABRASIVES**

**SAINT-GOBAIN  
INDUSTRIAL CERAMICS**

**SAINT-GOBAIN  
GLASS**

**bassetts**

**MINSTER**  
ROOFING AND ROCKLINE

**neville lumb**  
Residential Services Solutions

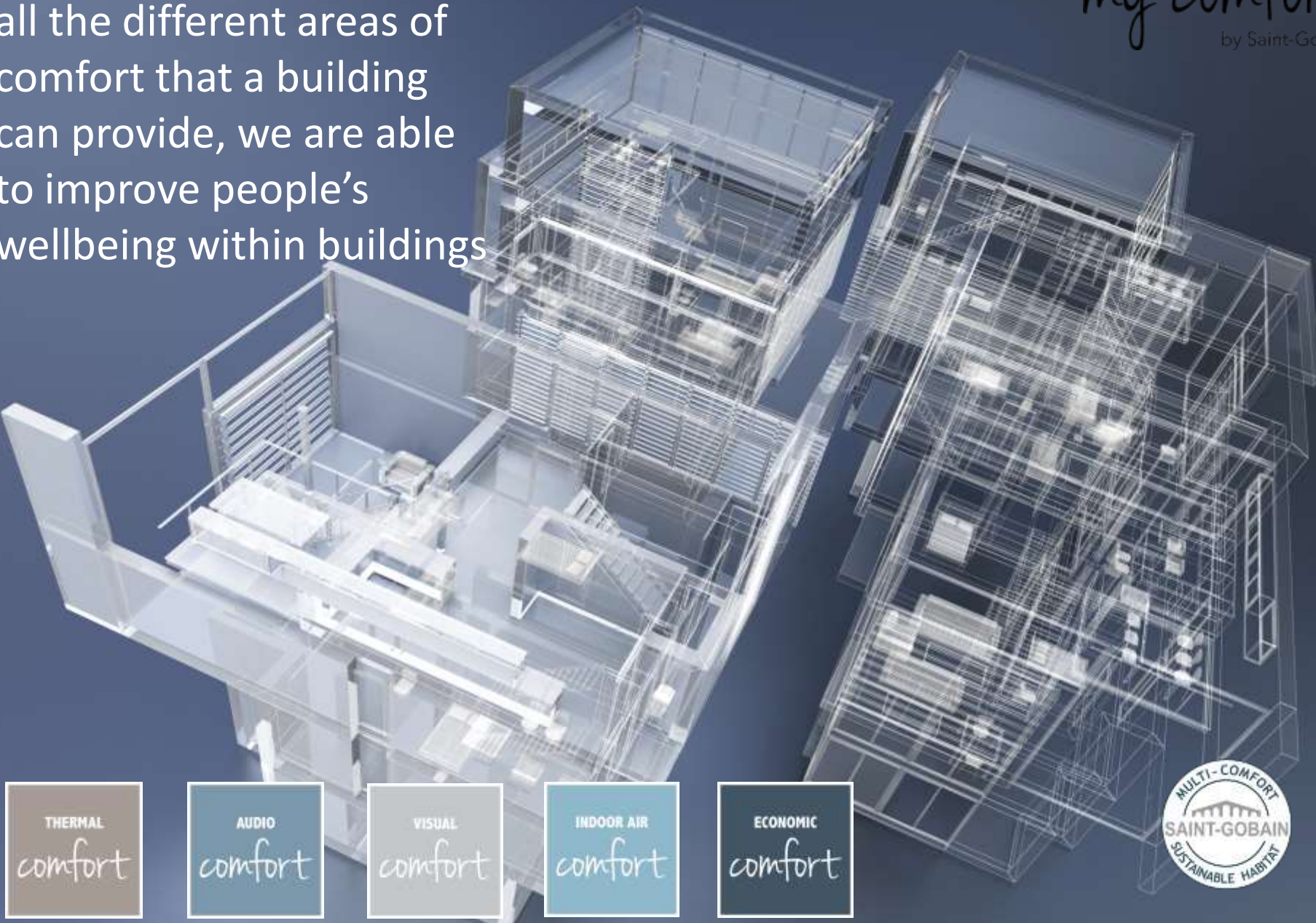
**JEWSON**

**gibbs & dandy**  
of your building needs

**GeorgeBoyd**  
INDUSTRIAL ROOFING

**G**  
Gulders & Grandjean

By carefully considering all the different areas of comfort that a building can provide, we are able to improve people's wellbeing within buildings



THERMAL  
comfort

AUDIO  
comfort

VISUAL  
comfort

INDOOR AIR  
comfort

ECONOMIC  
comfort



Saint-Gobain  
One of the 100 Most  
Innovating Companies in The  
World

Building Physics

Acoustics

Air Quality

Daylighting

- 7 Main R&D Centres
- 3700 employees
- €400m spend on R&D annually
- Over 400 patents filed in 2012
- 1 in 5 Saint-Gobain products sold today was developed in the last 5 years
- 12 research centres and about 100 development units worldwide

Energy efficiency &  
environmental impact  
of processes

Thermal  
Performance

Fire  
Safety

High Performance  
Materials

### Current Innovations:

- Development of “Smart” materials
- Products and systems with adjustable performance
- New capabilities to manufacture
- Co-development with digital technologies/startups





*Compte aluminium  
Colon blanc no. 1012*

		RESIDENTIAL New-Build	RESIDENTIAL Renovation	NON-RESIDENTIAL New-Build	NON-RESIDENTIAL Renovation
<b>THERMAL</b>	Heating & Cooling Energy Demand <b>PH</b>	15kWh/m <sup>2</sup> /p.a or 10W/m <sup>2</sup>	25kWh/m <sup>2</sup> /p.a	15kWh/m <sup>2</sup> /p.a or 10W/m <sup>2</sup>	25kWh/m <sup>2</sup> /p.a
	Relative Humidity <sup>12</sup>	40-60%		40-70% <sup>11</sup>	
	Overheating Prevention <sup>2</sup> <b>PH</b>	Limit Value: 10%		Limit Value: 10% <sup>3</sup>	
	Thermal Bridging <b>PH</b>	0.01 W/mK	0.01 W/mK <sup>9</sup>	0.01 W/mK	0.01 W/mK <sup>9</sup>
<b>AUDIO</b>	Acoustic Sound Insulation (Design Values)	+3dB of current acoustic regulation level for building type <sup>4</sup>		+3-6dB of current acoustic regulation and/or guidance level for building type <sup>4</sup>	
	Acoustic Absorption	N/A in most cases <sup>5</sup>		In line with current reverberation control regulation and/or guidance level for building type	
	Speech Clarity/Intelligibility (c50)	N/A		In line with current regulation and/or guidance level for building type	
	Harmonious Resonance	Due consideration to be given to frequency transfer of noise based on selection of structural materials			
<b>VISUAL</b>	Daylight Autonomy <sup>13</sup>	8am - 6pm DA 60% at 300lux	Optimise existing openings through glazing spec. <sup>1</sup>	BREEAM <sup>16</sup>	Optimise existing openings through glazing spec. <sup>1</sup>

*Boite vitrée couleur aluminium*



*Compte aluminium  
Colon blanc no. 10142  
3500*

INDOOR AIR	Airtightness (n50)	PH	0.6 V/h @ 50pa	Limit: <1.0V/h@50pa Target: <0.6V/h@50pa	0.6 V/h @ 50pa	Limit: <1.0V/h@50pa Target: <0.6V/h@50pa	
	Ventilation <sup>14,15</sup>	PH	30m <sup>3</sup> /hr/person <sup>8</sup>	30m <sup>3</sup> /hr/person <sup>8</sup>	To be agreed with Passivhaus Institute (PHI) based on a review of planned occupancy patterns/ratios <sup>8</sup>		
	Control of VOC's (3 routes to compliance)	Use of EN15616 tested materials <b>or</b> <sup>18</sup>					
		Internal materials finishes that remove VOC concentration <b>or</b> <sup>19</sup>					
			Total VOC Concentration <300µg/m <sup>3</sup> + Formaldehyde levels <100µg/m <sup>3</sup> <sup>17</sup>		Total VOC Concentration <150µg/m <sup>3</sup> + Formaldehyde levels <100µg/m <sup>3</sup> <sup>17</sup>		
ECONOMIC	Primary Energy Demand	PH	120kWh/m <sup>2</sup> /p.a		To be agreed with Passivhaus Institute (PHI) based on a review of electrical appliances & equipment planned		
	Fabric U-Values	0.08 - 0.15 W/m <sup>2</sup> K <sup>6</sup>					
	Window U-Value Installed Value	1.1 Uw DGW and 0.8 Uw TGW <sup>7</sup>					
	OPEX vs CAPEX Analysis	Provision of design statement used for planning that accounts for potential future building use and adaptability (Includes: Maintenance costs, standard build cost comparison with Multi-Comfort build cost, ROI based on running costs)					
	Embodied Energy Analysis	Using Type III EPD Verified (EN15804 Compliant) LCA/EPD Data of all Fabric and M&E components to inform specification <sup>10</sup>					

*Base vitre coloris te  
aluminium no. 10142*





Keeps itself warm using very little energy



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THERMAL  
comfort

Saving you money to spend on what you like



Without the need for radiators





No draughts, even on the floor



Every wall is warm to the touch

THERMAL  
comfort

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Keeps your ideal indoor temperature, all year round



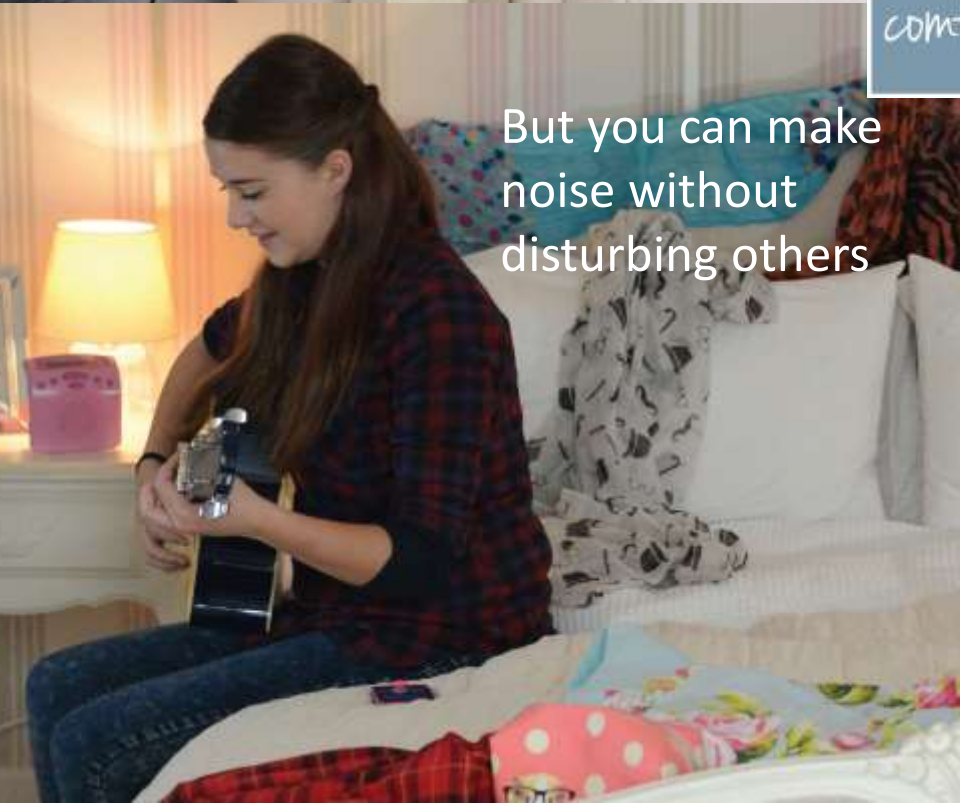


Where you cant hear the neighbours



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Protects you from the noise outside



But you can make noise without disturbing others





Where sounds you want to hear are crystal clear



You can hear perfectly, anywhere in the room

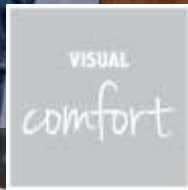


You're not distracted by background noise



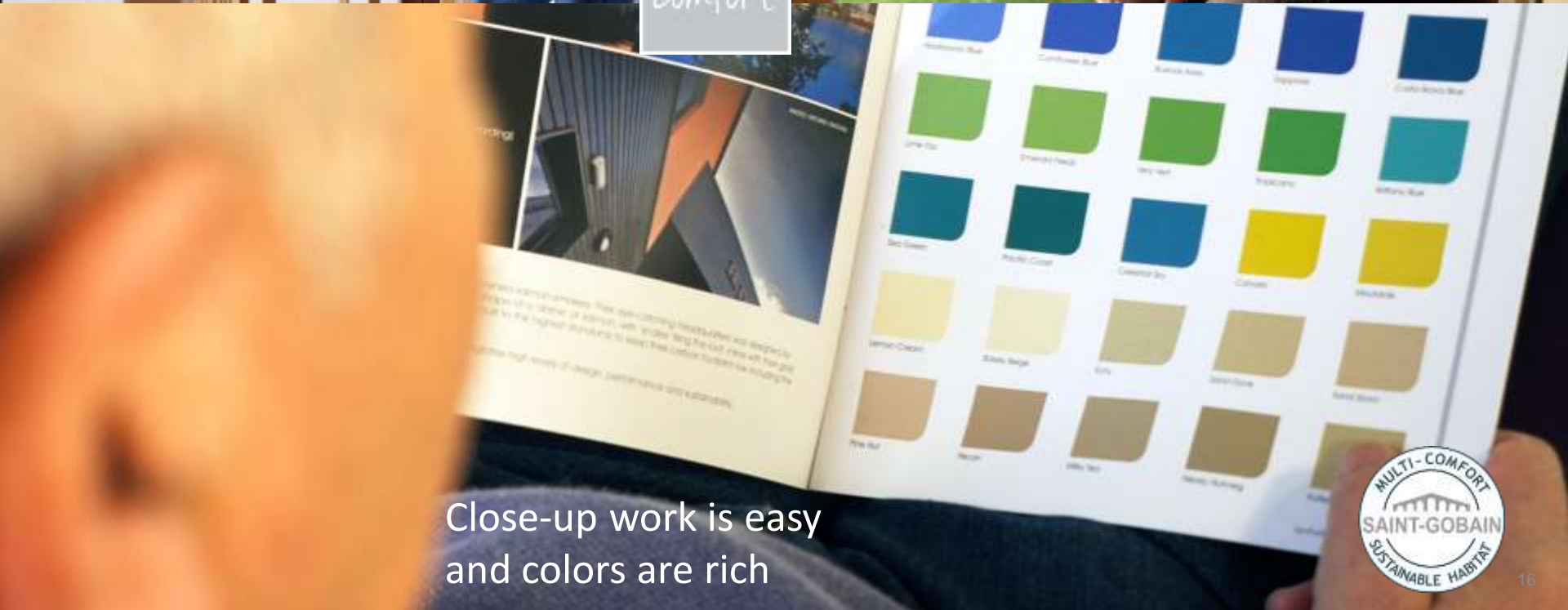


Full of natural light, without glare



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Brings the outdoors inside, making you feel good



Close-up work is easy and colors are rich



Keeps outdoor pollution outside



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Constant supply of fresh air means rooms never feel stuffy, keeping you feeling alert all day



Actively purifies the air: VOC's, moisture, odours





Without the worry of high energy bills



Doesn't cost the earth to build...



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Needing little maintenance



... nor the environment



😊 Better sleep

😊 Reduced stress

😊 Improved health

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😊 Faster healing

😊 Reduced bed-time

😊 Happier staff

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- 😊 Improved productivity
- 😊 Reduced absenteeism
- 😊 Increased job satisfaction

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😊 Improved concentration

😊 Better Communication

😊 Higher test results

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# Multi-Comfort Reference: New-Build

## The Kings School, Worcester

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# Multi-Comfort Reference: Renovation 4 Bed Masonry Empty-Home, Nottingham



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## Multi-Comfort buildings make economic sense

- ✓ Upfront material cost increases in higher performing buildings are offset many times by a decrease in running costs
- ✓ The value of your building will increase
- ✓ The occupants get to enjoy comfort, improved health and wellbeing while using it



Employ the right people to reduce the cost

How to build to Multi-Comfort levels  
Courses run from Saint-Gobain technical Academies  
Opportunity for contractors to bid for this growing market



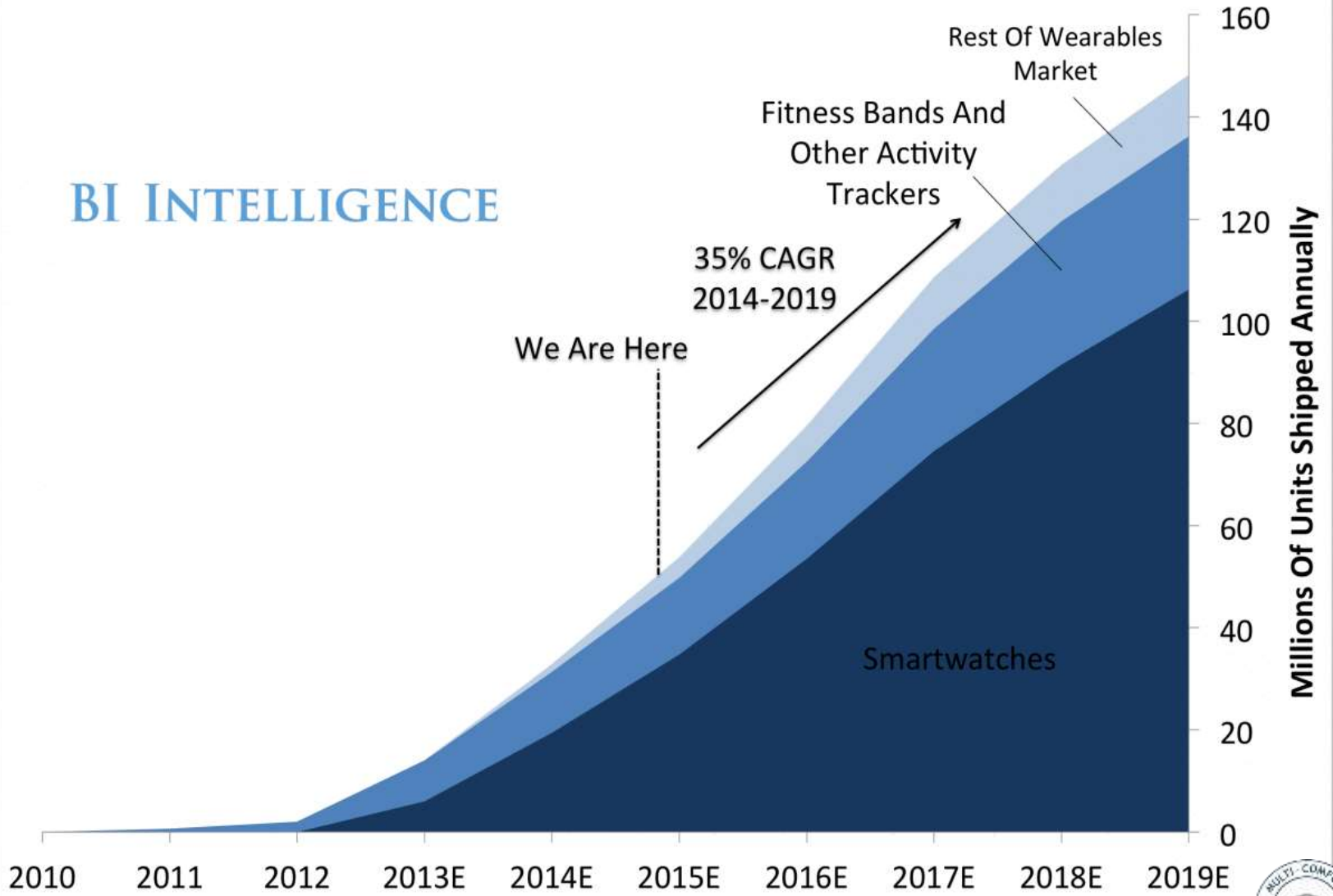
WELLNESS IS NOW A  
**\$3.4 Trillion**  
Global Industry

**3x BIGGER**  
Than the Worldwide  
Pharmaceutical Industry!



# Global Wearable Device Unit Shipments Forecast

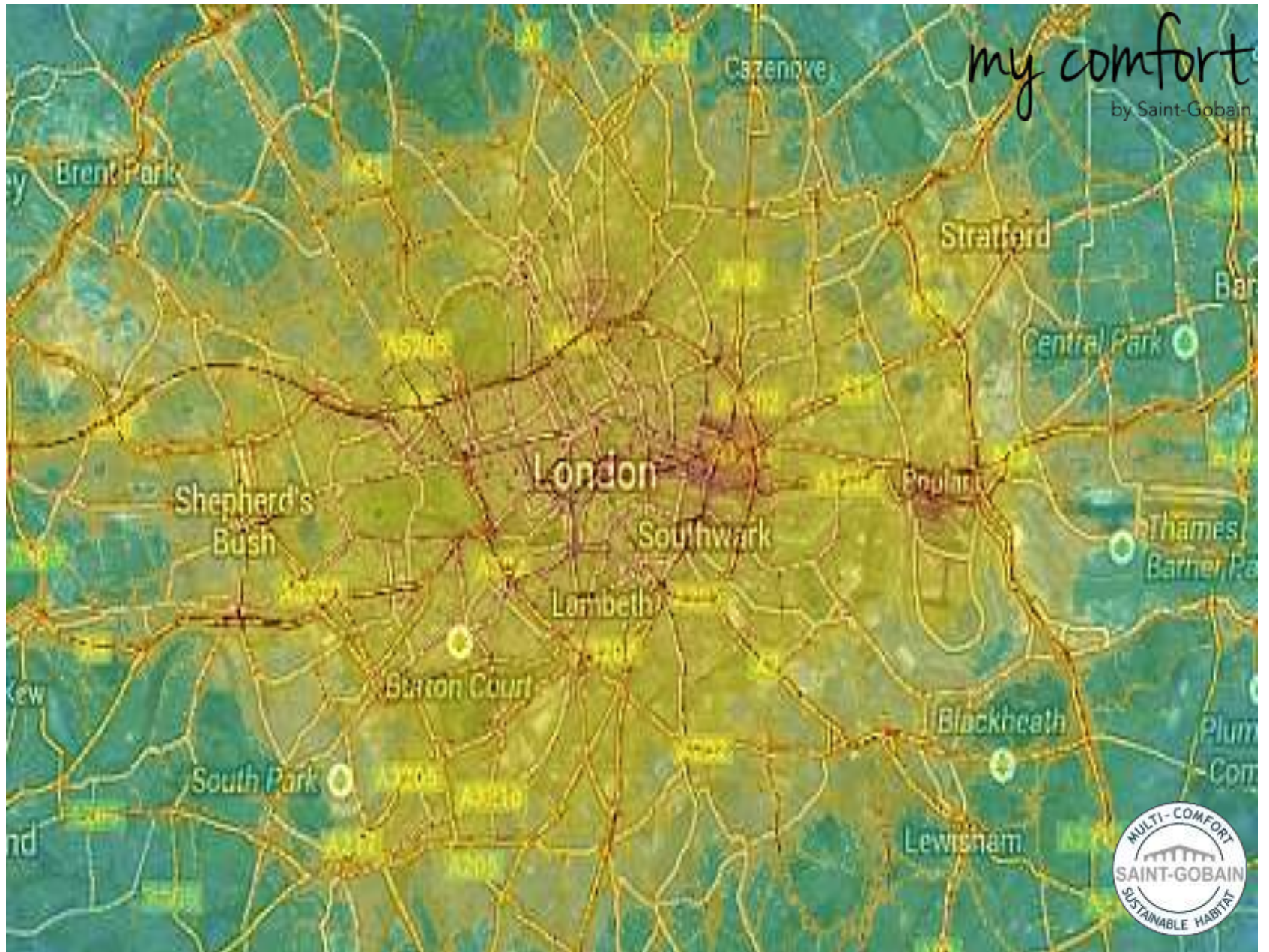
BI INTELLIGENCE



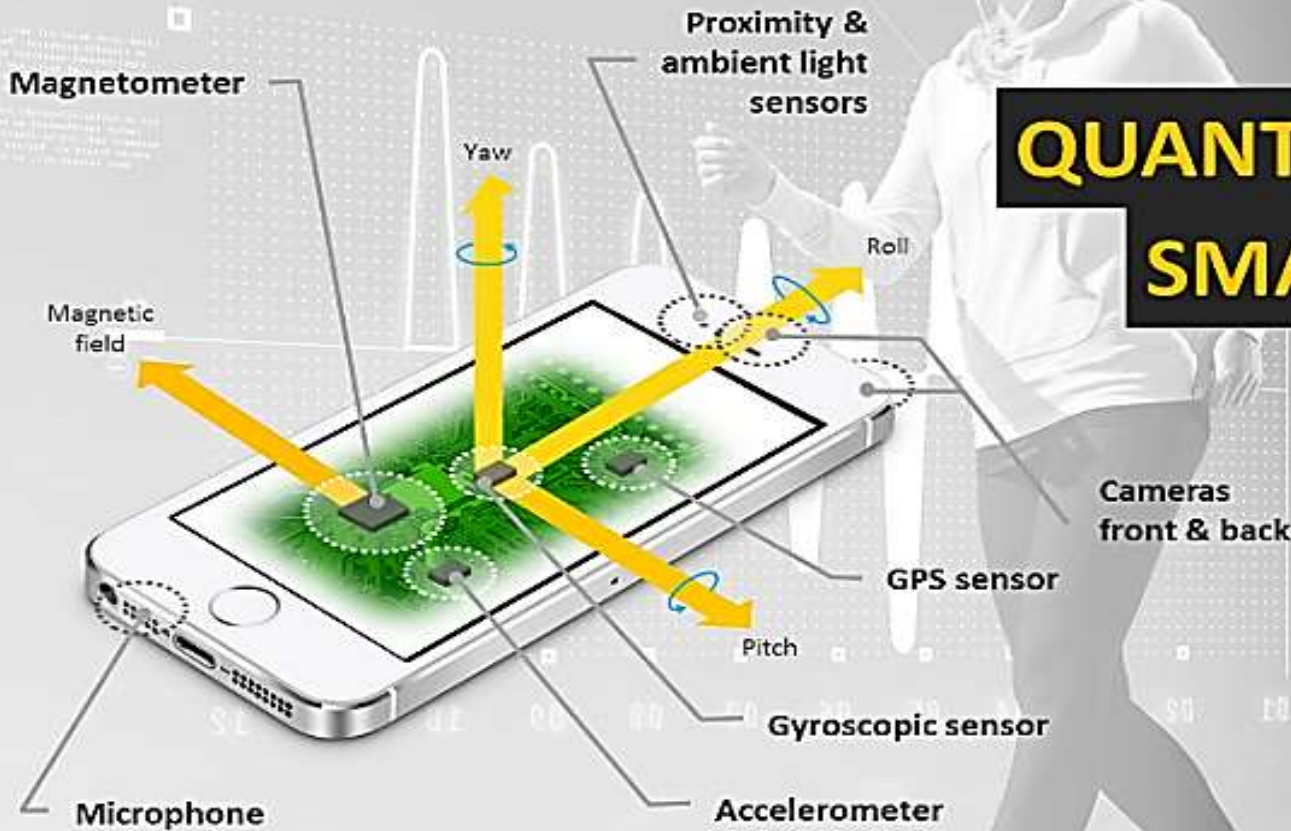
Source: BI Intelligence Estimates



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## A SENSOR FOR EVERYTHING...



# QUANTIFIED SELF SMARTPHONE SENSORS

Steps

Speed

Altitude

Heart rate

Calories

Distance

Location

**Be happy on the inside ☺**

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by Saint-Gobain

**Multi-Comfort buildings:**  
For your comfort, health  
& wellbeing

[www.multicomfort.co.uk](http://www.multicomfort.co.uk)

