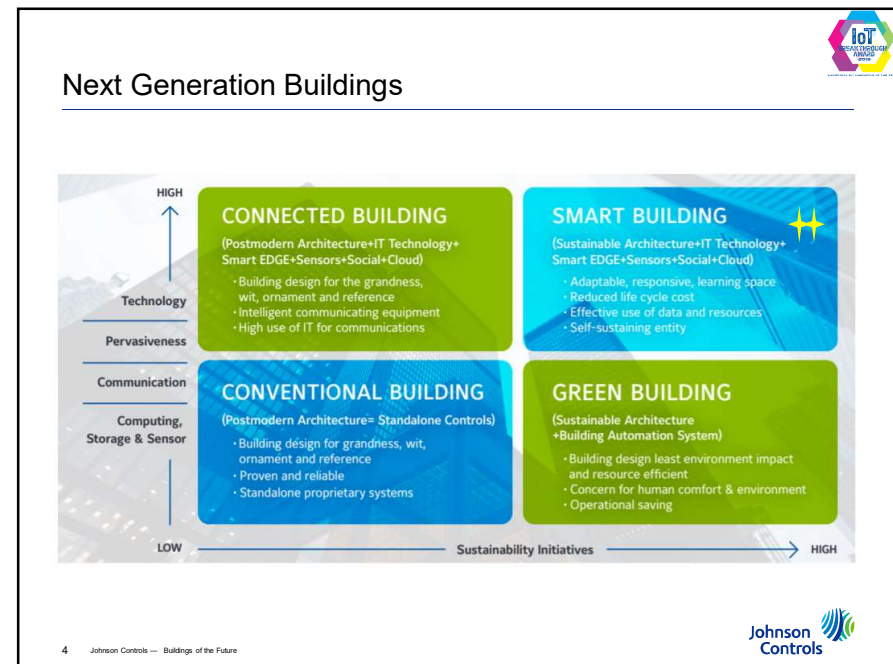
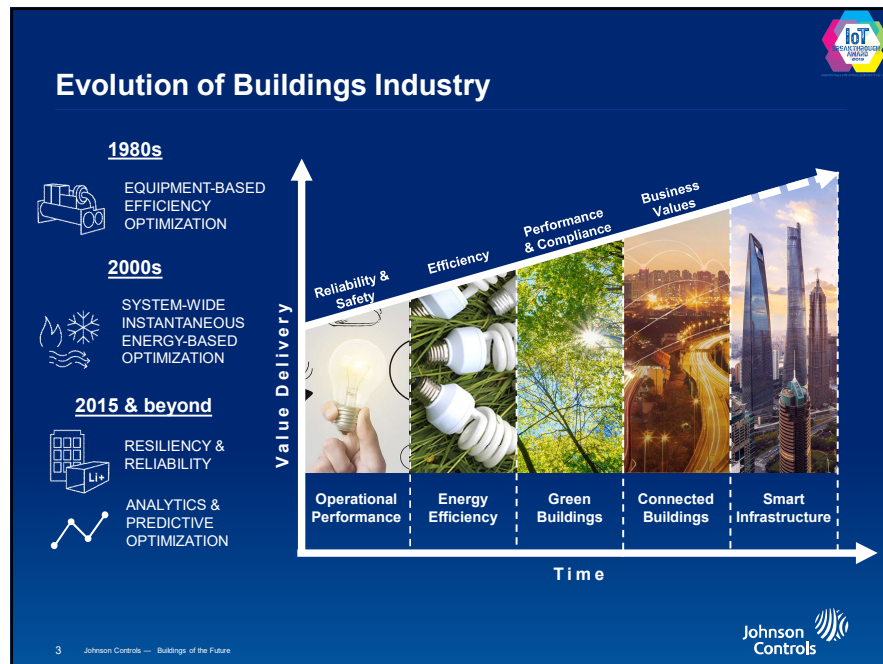


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Convergence of IoT + Big Data with Green Buildings:

Big Data to drive

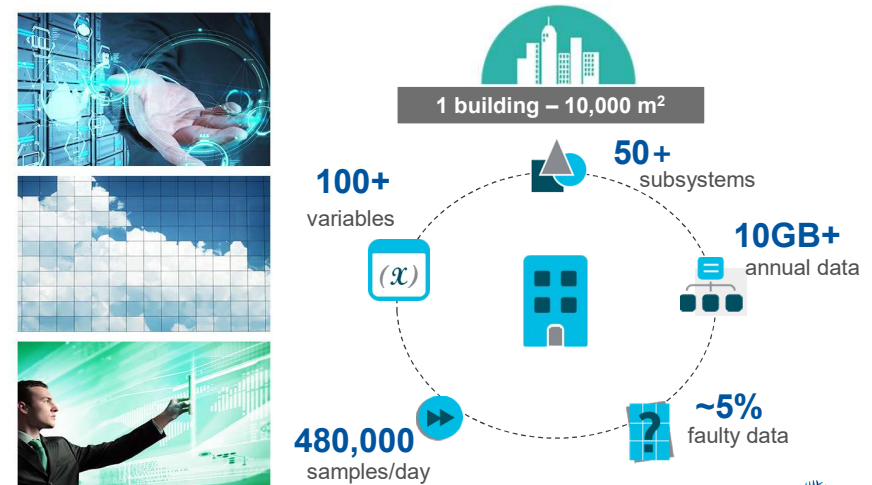
Operational Efficiencies, reduce Energy Consumption, improve Occupant Experiences and increase Financial Performance.



5 Johnson Controls — Buildings of the Future

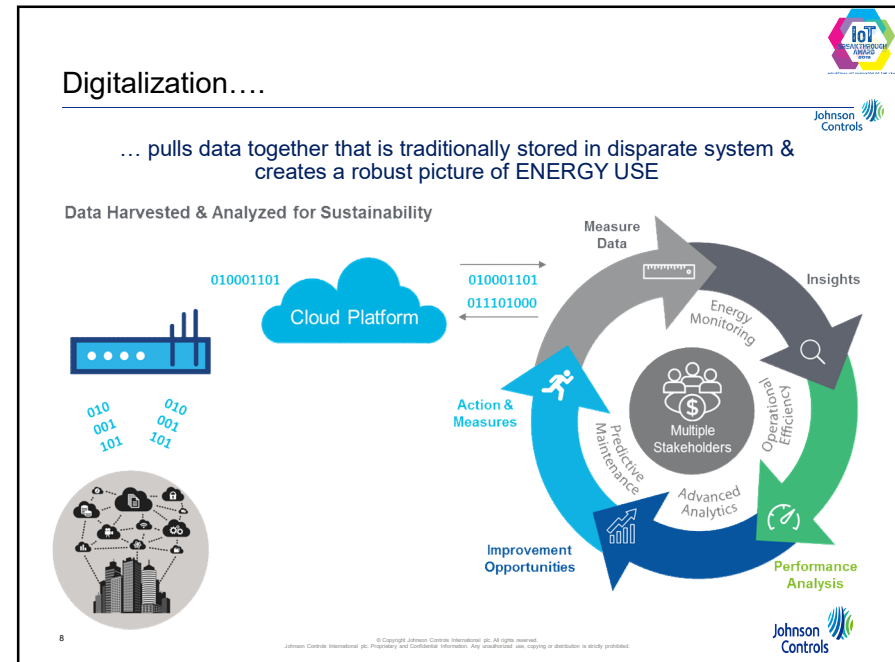
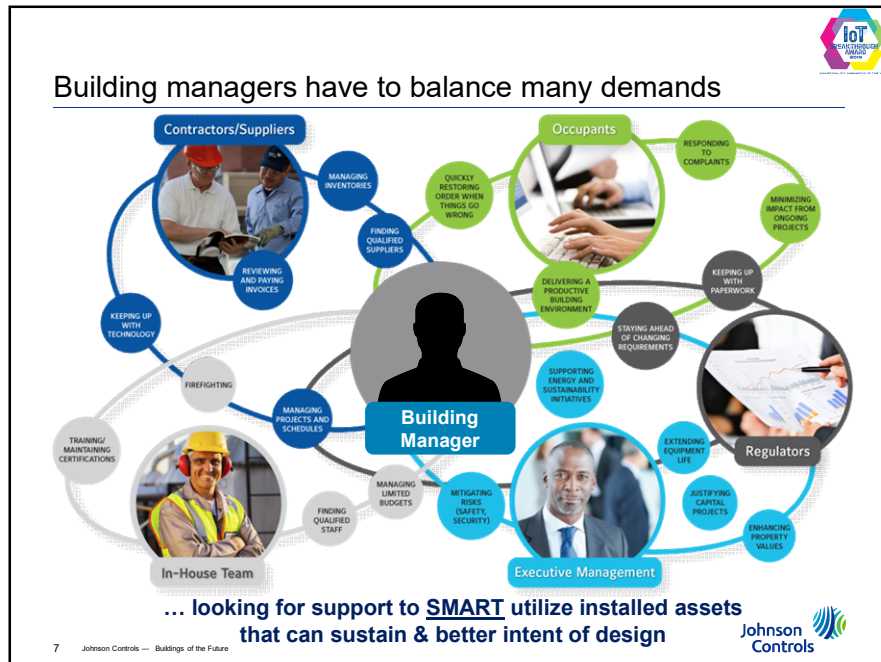


Buildings are rich data ecosystems

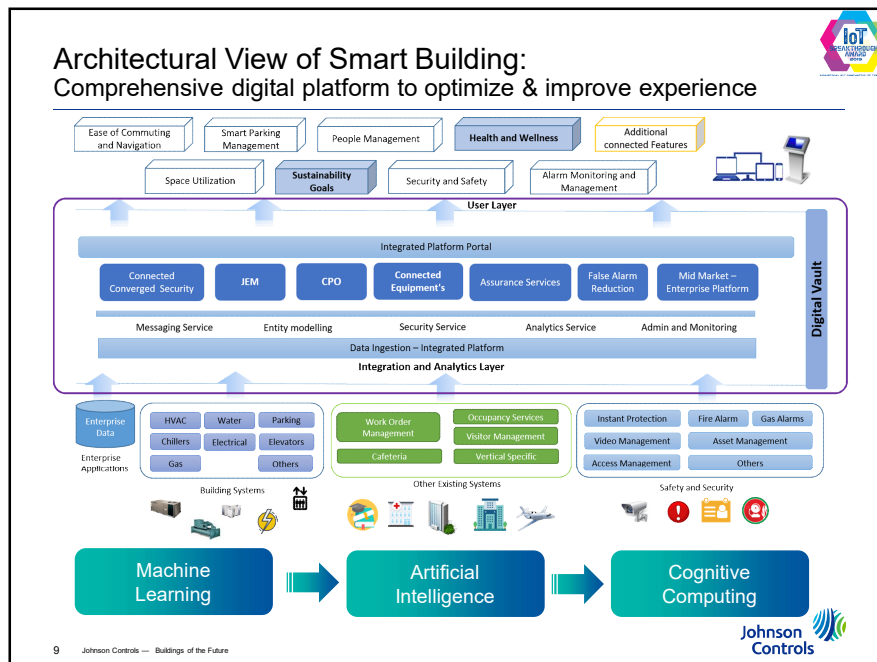


6 Johnson Controls — Buildings of the Future






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Key Takeaway

Unlock the Power of Building Data with *AI & Cognitive Computing*




1

Big Data-Big Changes




2

Transformational Platform




3

Intelligent Analysis




4

Optimized Performance



5

Safe & Secure



11 Johnson Controls — Buildings of the Future

Johnson Controls named “IoT Innovator of the Year” in 2019



THANK YOU



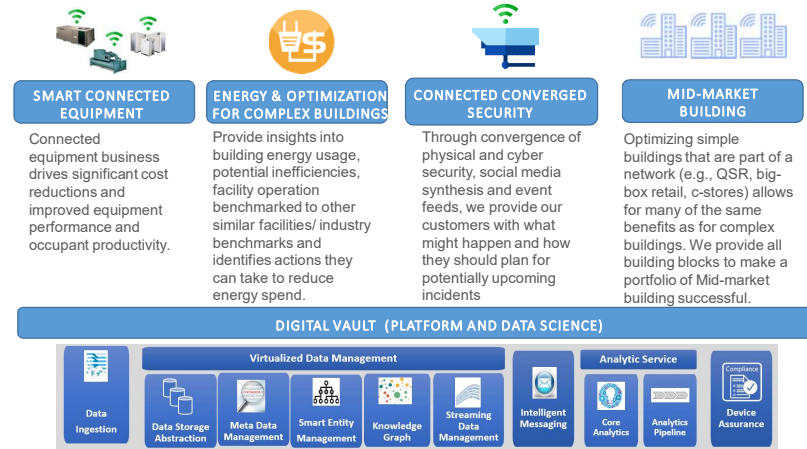
INDUSTRIAL IOT INNOVATOR OF THE YEAR



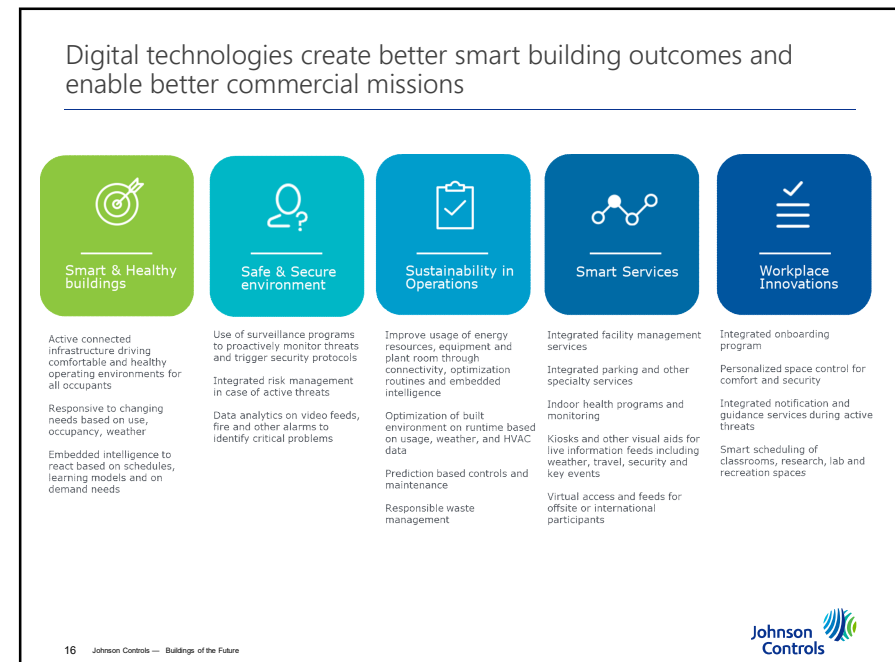
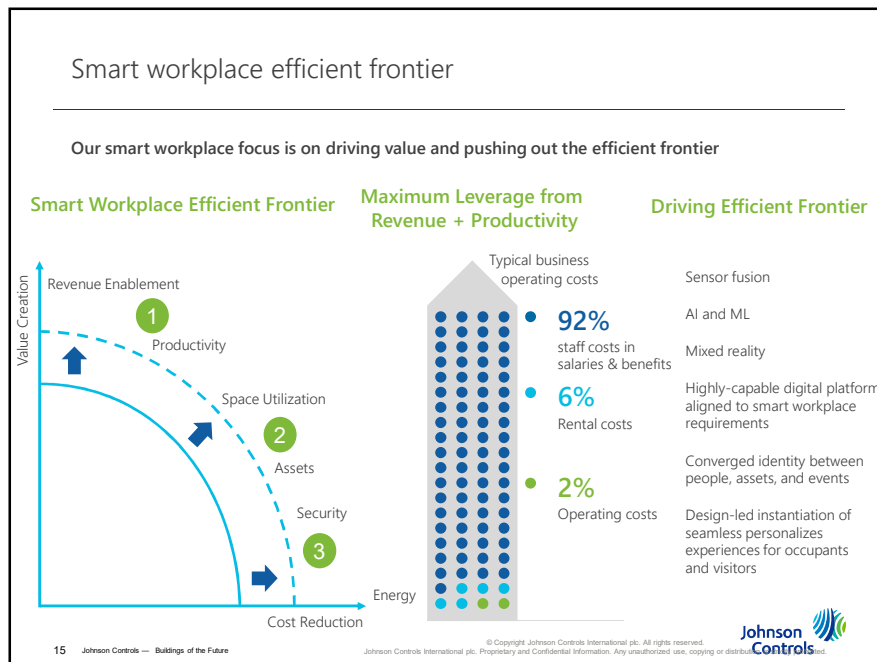
12 Johnson Controls — Buildings of the Future

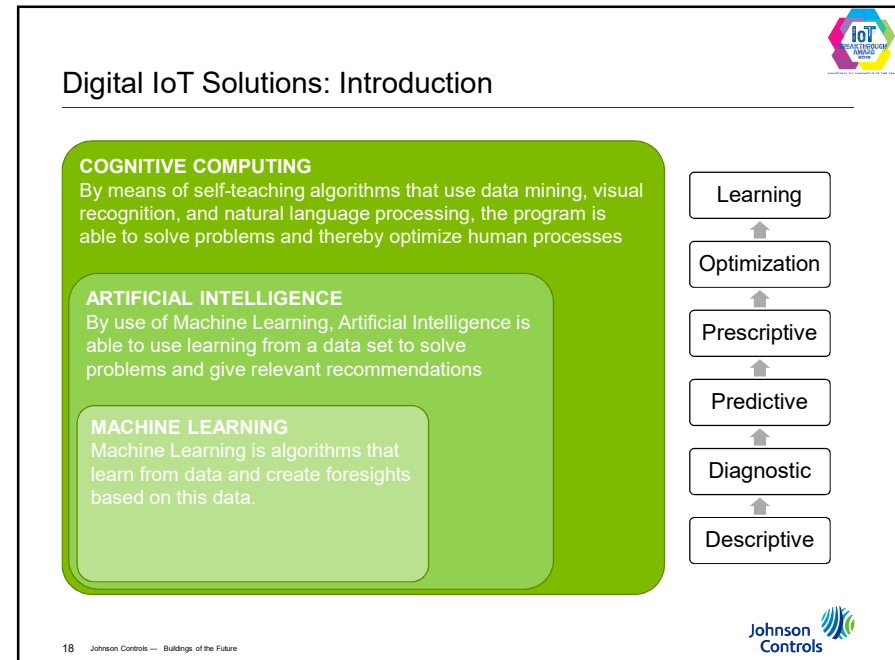
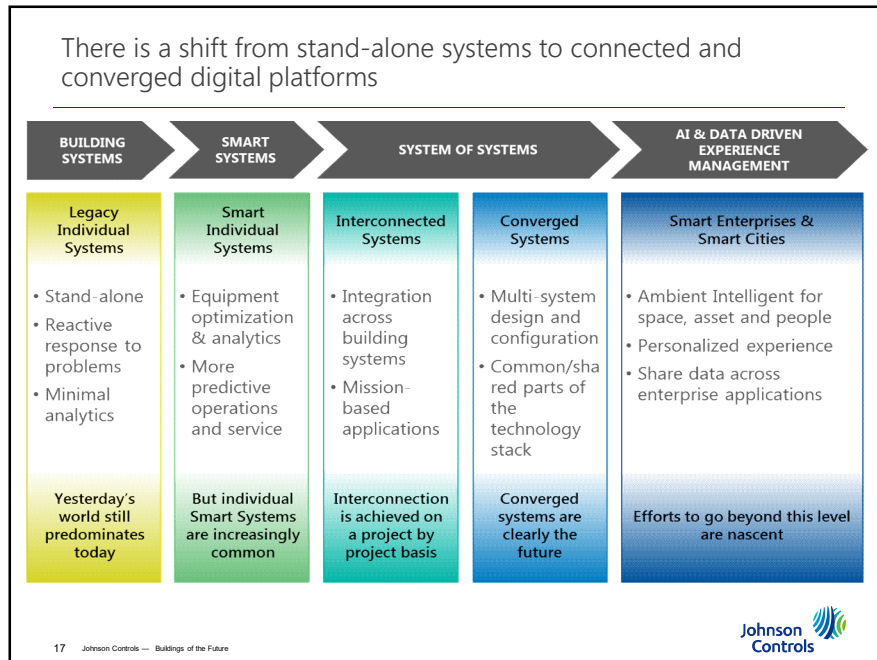
Annex

Overview of available Digital Solutions



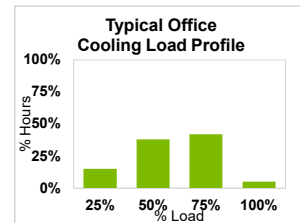
Comprehensive yet standard platform which is context enriched for buildings while leveraging the domain knowledge of JCI and scaled technology capabilities of partners where applicable like in cloud storage and processing.





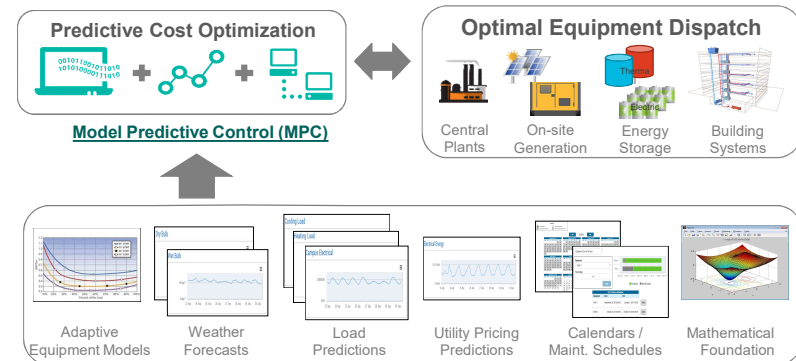
Central Plant Optimization (CPO)

- Central plants are typically designed for peak demand, with conservative assumptions
- Peak cooling capacity is needed for only a few hours per year
- Most operating hours are light to medium load, off-design conditions

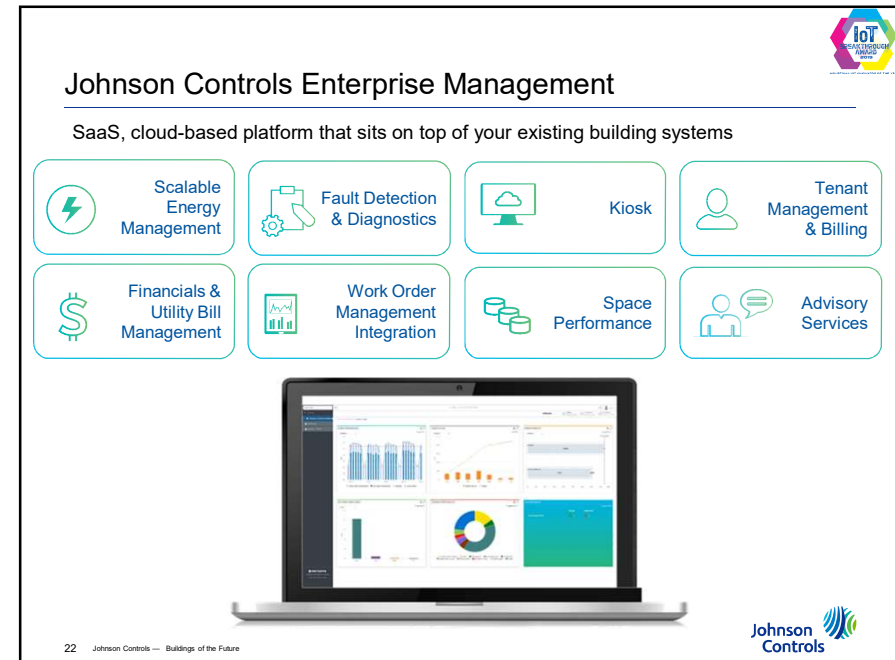
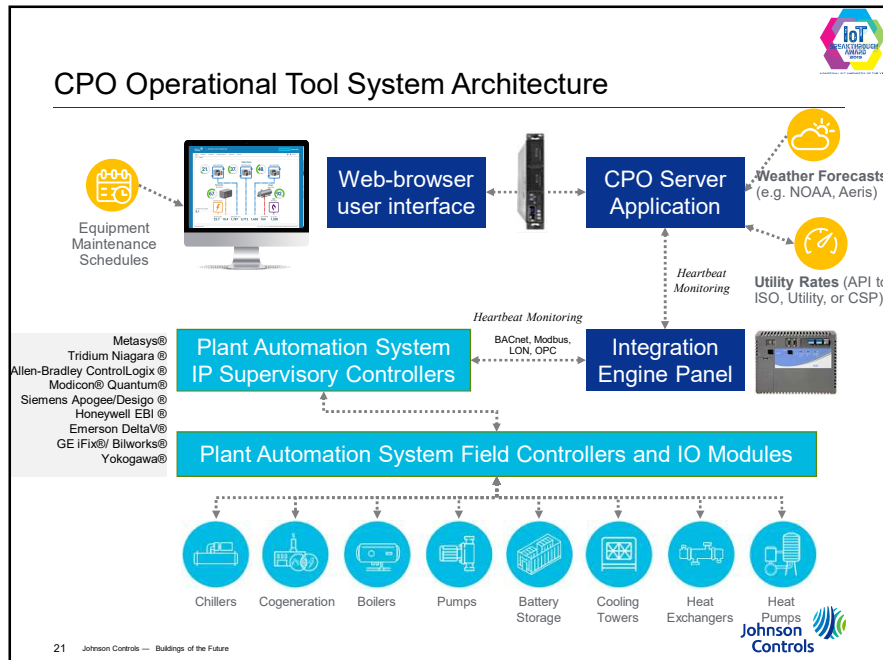


Pareto principle: In many cases, 80% of the impact comes from 20% of the effort

Central Plant Optimization (CPO)



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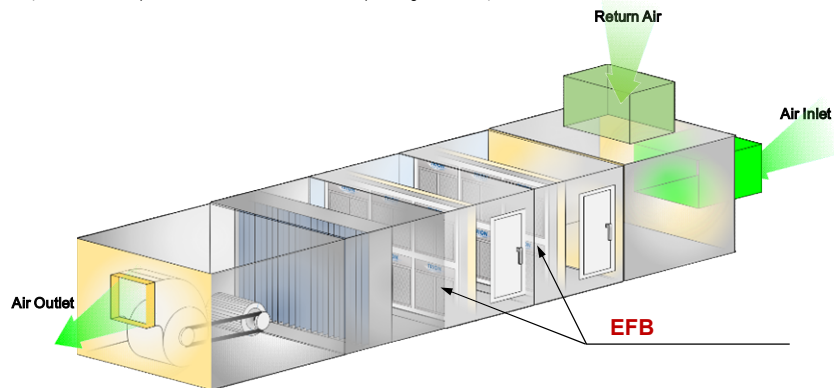


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EFB Application

EFB is applicable for air handling system. It can capture particulate matter of $\geq 0.01 \mu\text{m}$ and effectively purify air.

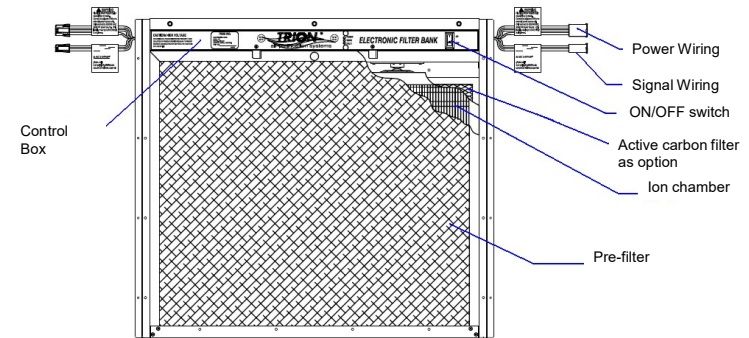
(PS: forbidden for places where has inflammable and explosive gas and dust)



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EFB Product Structure



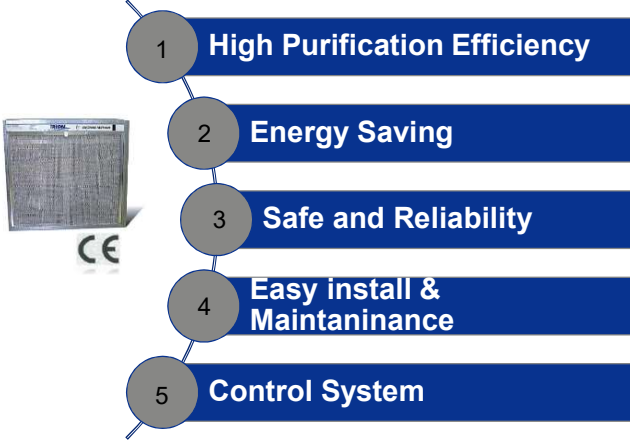
Desc :

- 6 Models ;
- Each unit has independent control box ;
- Indication lights: working, warning, wash reminding
- BA dry contact ;
- AFS configured

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EFB Features




- 1 High Purification Efficiency
- 2 Energy Saving
- 3 Safe and Reliability
- 4 Easy install & Maintaninace
- 5 Control System

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1. High Purification Efficiency

- PM2.5 purification efficiency(Arrestance) reach **95.5% @GB**;
- Ozone generation is only **0.015mg/m³** much lower than China GB request $\leq 0.16\text{mg/m}^3$.



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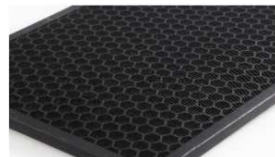
1. High Purification Efficiency(look look)

■ Wider purify range & Better sterilization

Items	HEPA	ESP
Particulate range	$\geq 0.3\mu\text{m}$	<u>$\geq 0.01\mu\text{m}$</u> , 6200V high voltage and capable for much smaller particulate
Sterilization Ability	Not	<u>Yes</u> , as High intensity pulse current destroy bacteria cell membrane proteins

■ Odor Elimination---Active carbon filter option

There is post-positioned active carbon filter as option for odor elimination.



2. Energy Saving

■ Much Low Pressure Drop

Pressure drop @2.5m/s is only 17.1Pa which is test in 3rd lab.
Energy Saving and cost saving for air conditioning system.

国家空调设备质量监督检验中心

检验报告

报告编号: 2017AC07	3017AC07	页 3 共 页 3 共
产品名称	规格/型号	检测标准
1. 规格	2. 规格	3. 规格
4. 规格	5. 规格	6. 规格
7. 规格	8. 规格	9. 规格
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■ Solid-state self-regulating power

Solid-state self-regulating power can monitor ambient T, H and blocking situation to smart regulate power output to ensure efficiency and stability.

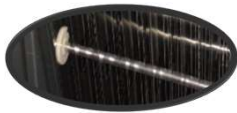
■ Pre-filter Protection

Configured with pre-filter to primary filter large particulate to protect EFB, ensure efficiency, reduce the wash frequency and longer its life span.

3. Safe and Reliability

■ Reliable Insulation

Ion box use ceramic block as insulation protection to avoid spiking.



■ Safety design

AFS is equipped to synchronize with the unit for energy saving and protection.

Safety switch can cut off power when checking and maintenance to protect people.

■ Robust design of Ion box

- Aviation aluminum-alloy outer frame, subject to polishing treatment which is more anti-corrosion and durable;



- Optimized design for dust-collecting plate to reach high purification efficiency, clogging capacity but low pressure drop;



- Ion wire material has much strong tenacity and robustness, much durable and not easy broken.



29 Johnson Controls —

4. Easy install & Maintenance

■ Multi type design

2 types, 6 basic models can meet any selection and different needs

■ Modularity design

EFB is Modular designed. Much flexible for selection, arrangement and installation according to customer needs.



■ Easy for Maintenance

EFB is washable repeating and no much limitation.

Convenient structure design to take out and pull back ion box, much easy for maintenance.



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5. Control System

■ Performance indication

There are indication signals for running, failure alarm and cleaning alarm, so that customer can monitor it and wash it in time.

■ BA connectivity

Building remote monitoring BA communication interface is available.