

Occupancy and Human Factors

مراقب
تدريب واستشارات

HR



Chapter 1

The Human Factor in the Workplace

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Chapter 2

Workplace Environment

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Chapter 3

Occupant Services

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Chapter 4

Creating a Safe and Secure Workplace

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Chapter 1

The Human Factor in the Workplace

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Contents:

- 1-Effective Workplace
- 2-The Need for Comfort
- 3-Humans and Change



1-Effective Workplace



1-Effective Workplace

Balanced Scorecard (BCS)

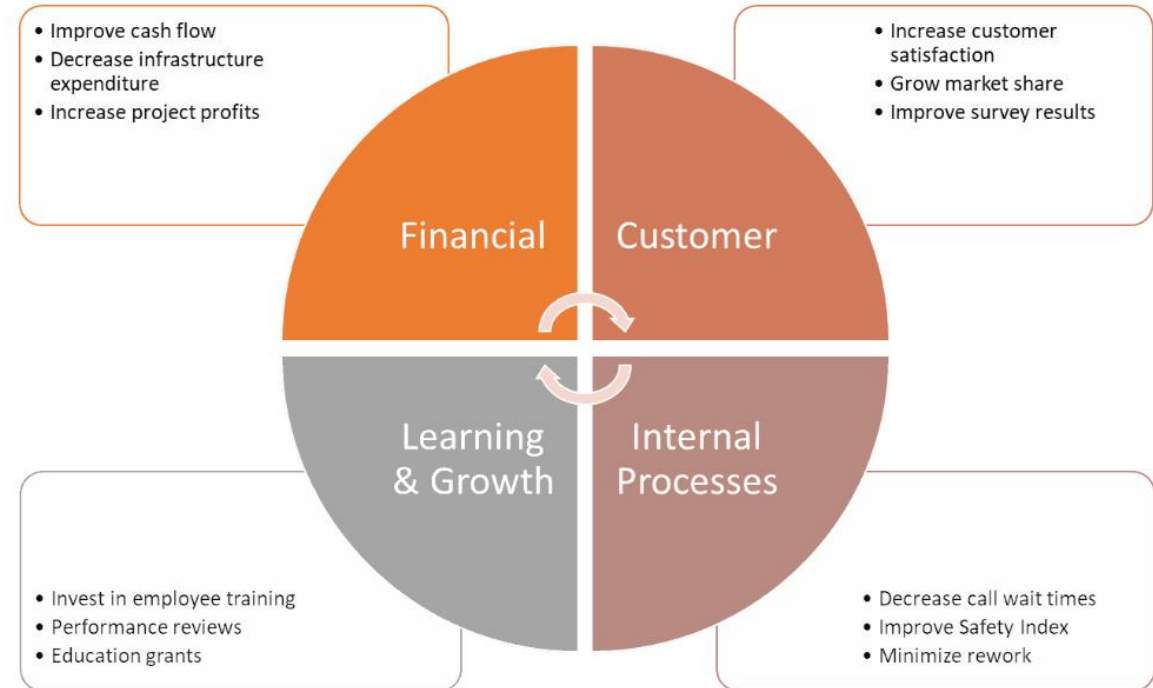


Image: Balanced scorecard in cycle format

1-Effective Workplace

Francis Duffy's Three Es

Efficiency

Effectiveness

Expression



1-Effective Workplace

Figure 4, the journey map diagram represents an employee's workday.

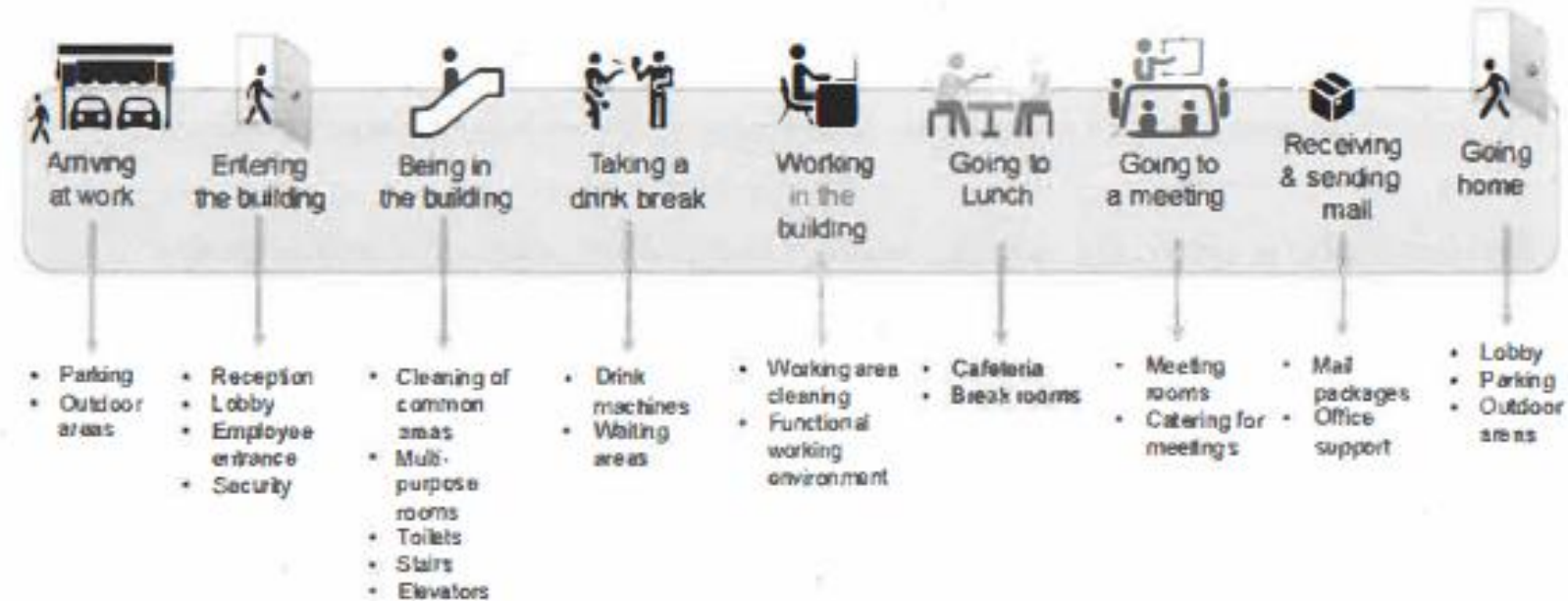


Figure 4 Example of a journey map with touch points.

Journey Maps

Work Styles & Workplace Design

Desk-bound

Internally mobile

Externally mobile

Figure 3 represents where the work integration happens.

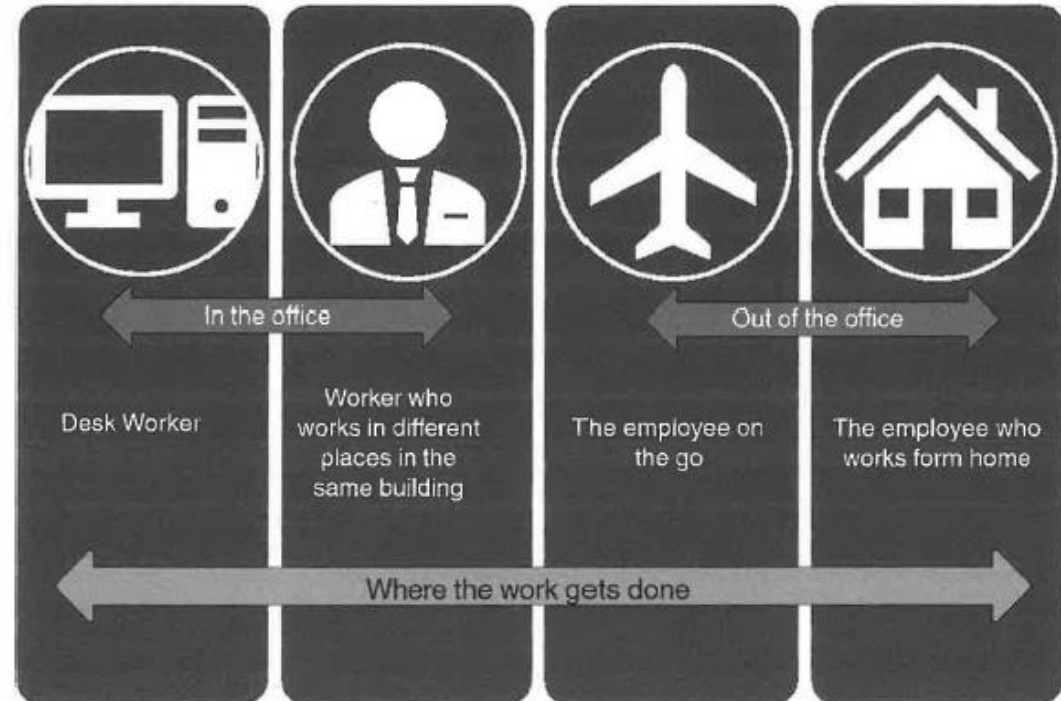


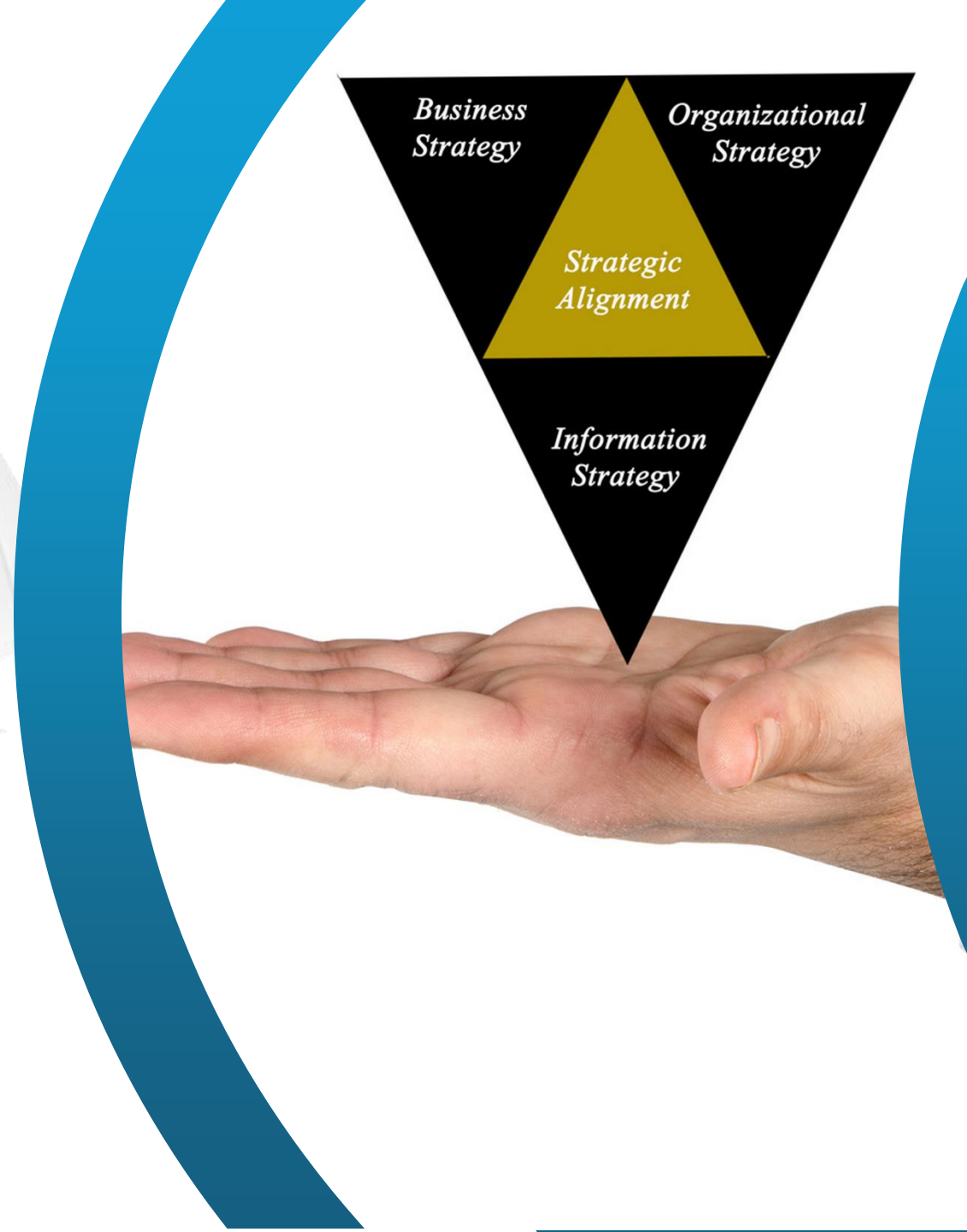
Figure 3 Integration of work

Aligning FM Strategy

Organizational Strategy

Culture

Values



Compliance

Laws

Safety

Standards

Regulations



2-The Need for Comfort



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Maslow's Hierarchy

1-Physiological Needs



2-The Need for Comfort

Maslow's Hierarchy

2-Safety Needs



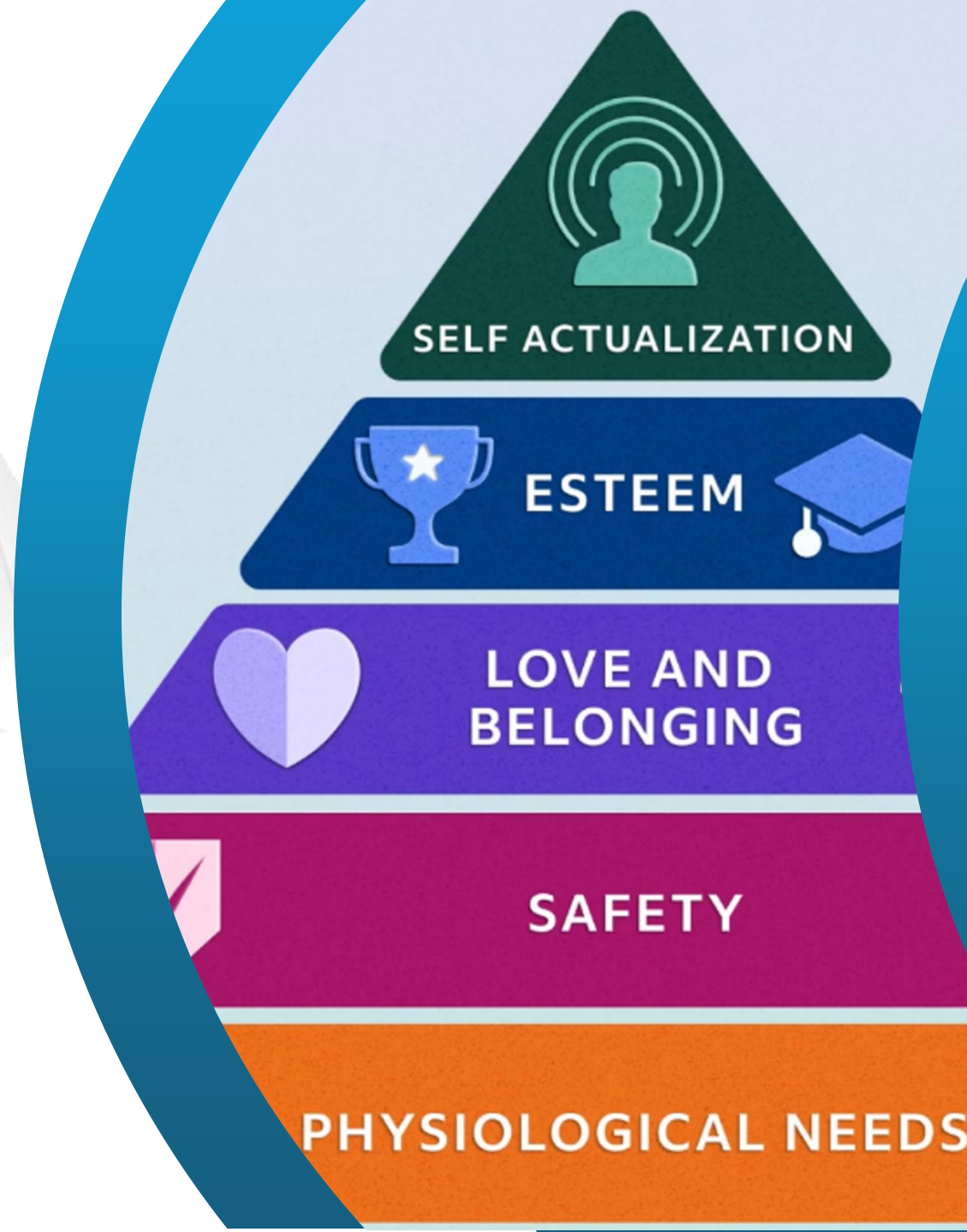
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2-The Need for Comfort

Maslow's Hierarchy

3-Social Needs



Maslow's Hierarchy

4-Esteem Needs



Maslow's Hierarchy

5-Self-Actualization Needs



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3-Humans and Change



The Problem of Change

2 Case Study :

1- Xenia, Ohio (1974 Tornado)

2- Greensburg, Kansas (2007 Tornado)



Why Occupants Resist Change

- 1- Loss of Familiarity and Security
- 2- Cognitive Resistance
- 3- Initial Productivity Decline
- 4- Emotional and Psychological Attachment

Stage of Adapting Change

- 1- Shock and Denial
- 2- Anger
- 3- Bargaining



3-Humans and Change

Stage of Adapting Change

4-Depression

5- Acceptance



FM Support Change

Communicate the reasons

Show short- and long-term benefits



Challenges & FM's Approach

- 1-Fear of Loss
- 2-Mistrust of Superiors
- 3-Identifying a Change Champion



Challenges & FM's Approach

4-Resistance to Change s

5-The Costs of Change

6-Learning New Processes



Challenges & FM's Approach

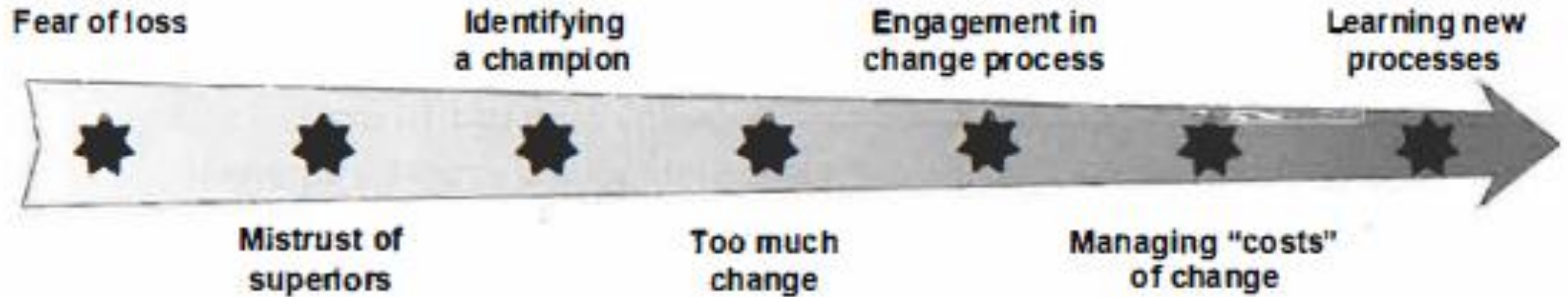


Figure 6 Stages of Occupant Reaction to Change in Facility Space and Services

Bridges Transition Model

1-Ending, Losing, and Letting Go

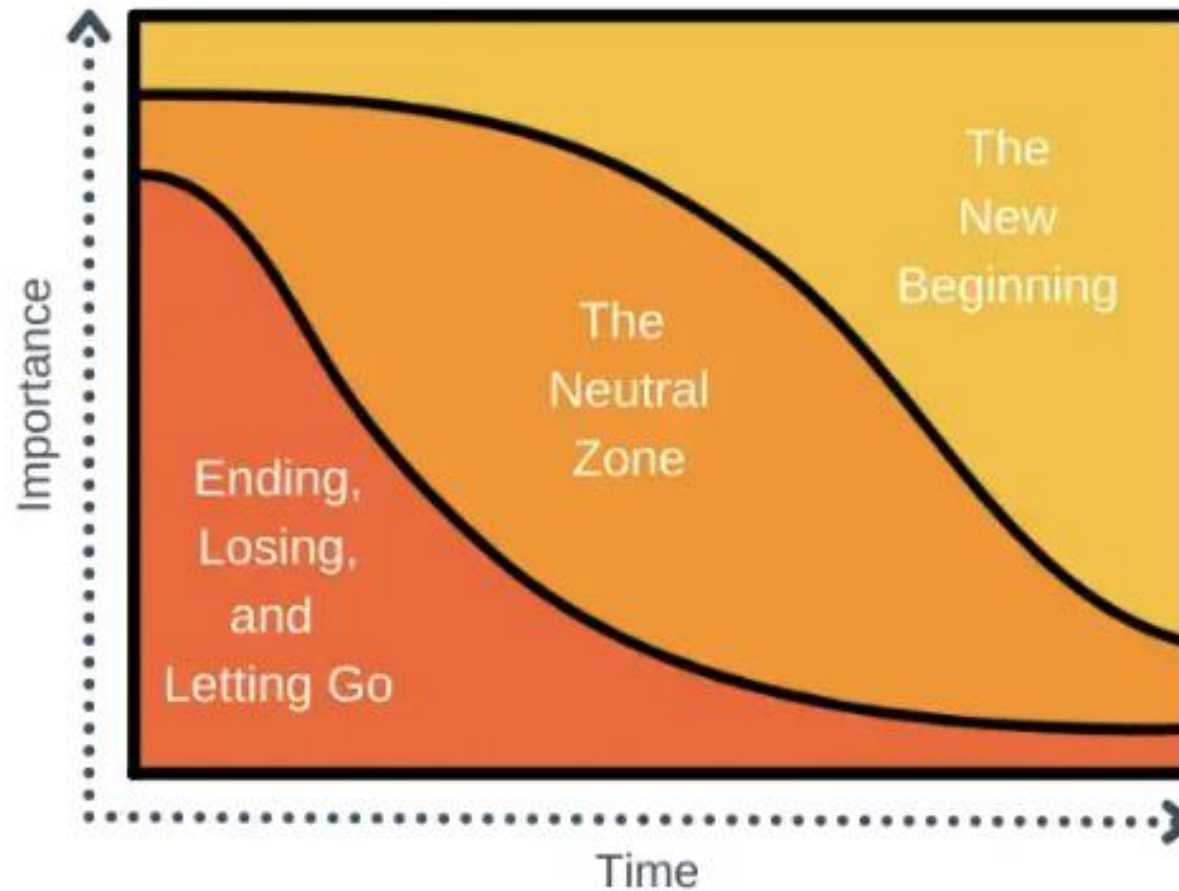
2-The Neutral Zone

3-The New Beginning



3-Humans and Change

Bridges Transition Model



COVID-19 and FM Changes



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Communication in Change Management

The Bleiker Life Preserver



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CHANGE

3-Humans and Change

The Bleiker Life Preserver Model for Communicating Change

The Situation	The Communication Approach
1. A serious problem or opportunity must be addressed.	Focus first on the problem before presenting the solution.
2. You are the right entity to address the problem.	Validate why your team is qualified and responsible for handling the issue.
3. The approach to solving the problem is reasonable and well thought out.	Share your reasoning and demonstrate that the issue has been thoroughly considered.
4. You are listening and care about the impact of the change.	Acknowledge feedback, show empathy, and ensure the final decision considers concerns.

While not all changes require full application of this model, understanding these principles helps facility managers (FMs) navigate resistance and lead change effectively.

Best Practices for Communicating Change Do

- 1-Address conflicts early
- 2-Explain the reasons
- 3-Engage employees



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Best Practices for Communicating Change **Avoid**

- 1-Ignoring reactions
- 2-Lying & overpromising
- 3-Asking vague, open-ended questions



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Chapter 2

Workplace Environment

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Contents

- 1-Indoor Environmental Quality
- 2- Healthy & Effective Workplace
- 3-Occupant Wellness

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Derek Clements

"The physical environment can enhance one's work, but an unsatisfactory environment can hinder work output."

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Sick Building Syndrome (SBS)

(Abdul-Wahab, 2011)



Indicators of SBS

Headaches

Eye or nose irritation

Dry cough

Fatigue



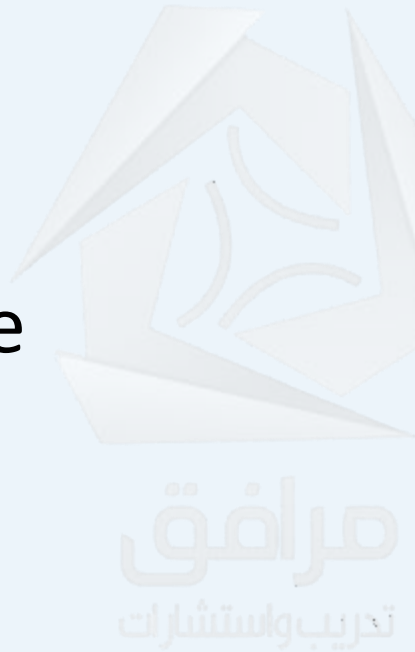
Common Causes of SBS

Inadequate ventilation

Fluctuations temperature

Poor lighting

Low cleaning standards



1-Indoor Environmental Quality (IEQ)

Building-Related Illness (BRI)

U.S. Environmental Protection
Agency (EPA)

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Common Causes of BRI

Excessive levels of CO & CO₂

Toxic substances

(asbestos and radon)

Bacteria, viruses, and fungi

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Legionella pneumophila

caused 29 deaths



IAQ Investigation Steps

- 1-Walkthrough Inspection
- 2- Pre-Walkthrough Preparations
- 3-Forming & Testing Hypotheses
- 4-Ongoing Investigation

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1-Indoor Environmental Quality (IEQ)

Key Components of IEQ

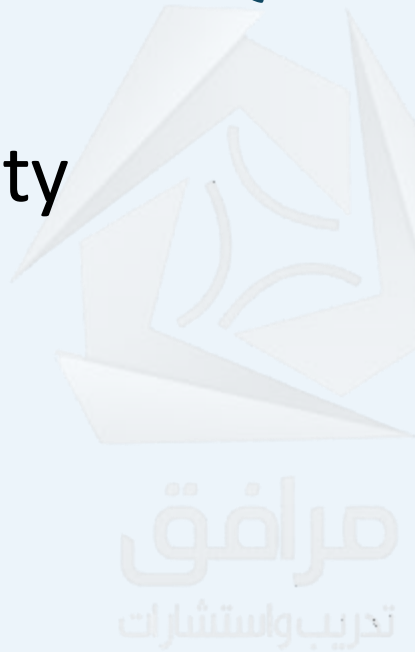
1-Temperature & Humidity

2- Indoor Air Quality

3-Lighting

4-Noise Control

5-Cleanliness



1-Indoor Environmental Quality (IEQ)

1-Temperature Comfort Factors Affecting

Air Movement

Relative Humidity

Temperature Fluctuations



1-Temperature Comfort

Ideal Temperature as ASHRAE Standard

Winter: 68.5°F to 75°F (20.3°C to 23.9°C)

Summer: 75°F to 80.5°F (23.9°C to 26.9°C)

Assuming 50% relative humidity

1-Temperature Comfort Strategies to Support

HVAC systems deliver optimal
Display temperature setpoints
Conduct occupant satisfaction
surveys



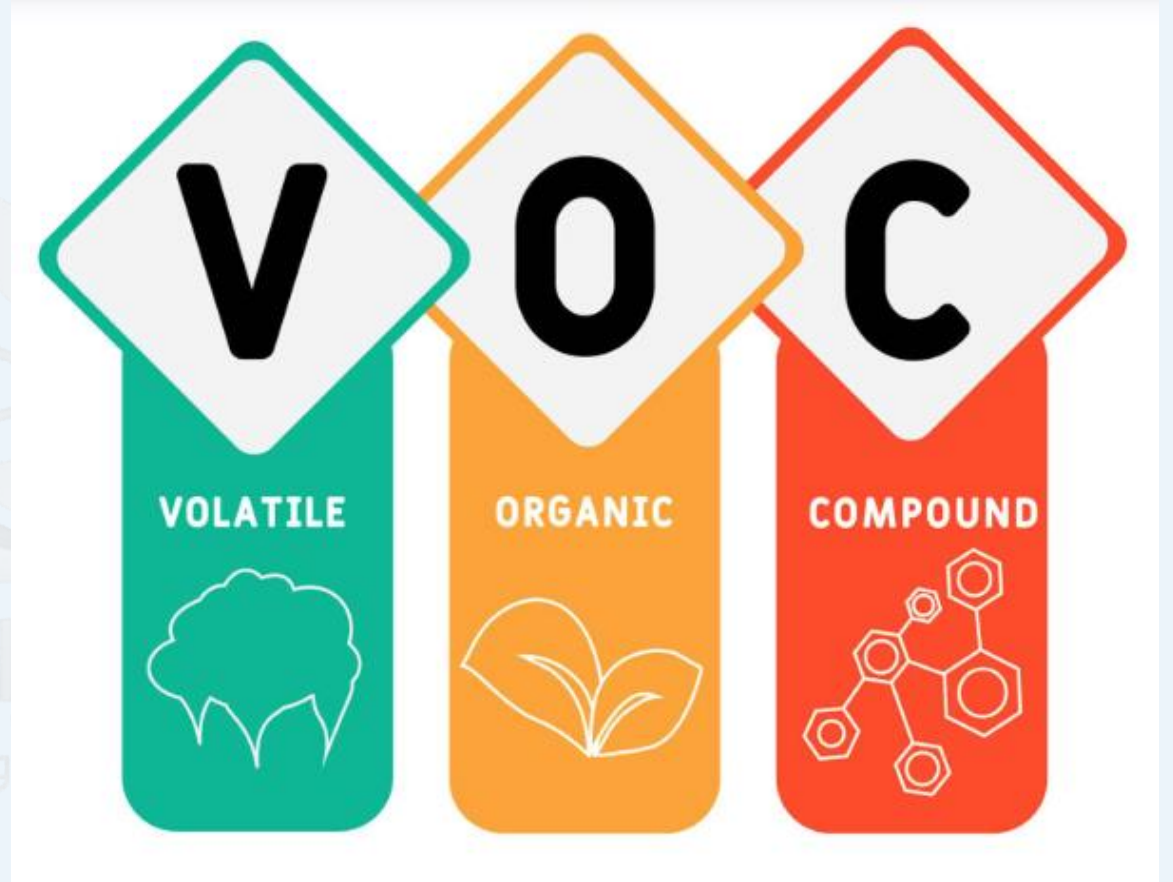
1-Indoor Environmental Quality (IEQ)

2-Indoor Air Quality Factors Affecting

Equipment & Processes

Compliance with Regulations

Facility Furnishings



1-Indoor Environmental Quality (IEQ)

2-Indoor Air Quality Factors Affecting

Occupants

External Environment

Breakrooms & Cafeterias



1-Indoor Environmental Quality (IEQ)

2-Indoor Air Quality Strategies to Support

Integrate CO₂ sensors and alarms

Inspect exhausts and dampers regularly

Prevent mold and mildew

Revise purchasing policies to minimize VOCs



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3-Lighting Factors Affecting

Task-Specific Lighting

Avoiding Glare

Managing Visual Clutter



3-Lighting

Space	Foot-Candles	Lux
Open office	30	323
Private office	50	538
Printed tasks	30	323
Conference room	30	323
Videoconference room	50	538
Stairways/corridors	5	54
Lobby	10	108
Restrooms	5	54
Warehouse	30	323
Storage	10–30	108–323
Maintenance	50	538

Table 4 Lighting Recommendations for Sample Spaces and Tasks

Source: Bill Conley. Lighting Solutions. Sustainability "How-To Guide" Series. Houston, Texas: IFMA Foundation, 2010.

3-Lighting Factors Affecting

Reduce glare

Minimize flickering lights

adequate lighting levels

LED and Skylights



4-Noise Negative Effects

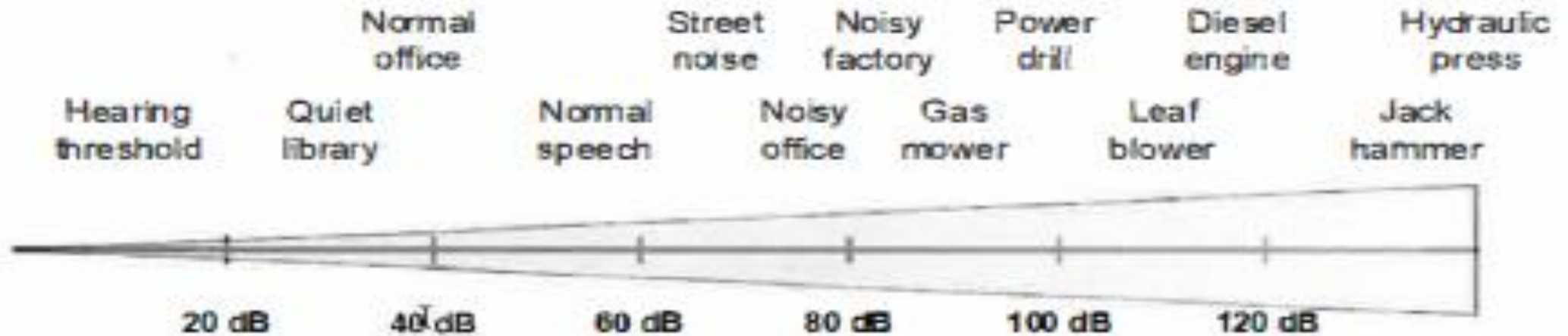
Hearing Loss

Safety Hazards

Distraction & Productivity Loss



4-Noise



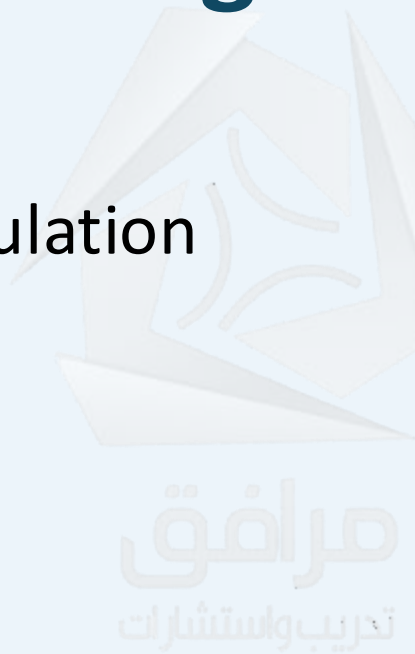
Potential for hearing damage increases with decibel level and continuous exposure.

Figure 7 Typical Noise Levels

Noise Reduction Strategies

Reduce noise from poor insulation

Install acoustic materials



5-Cleanliness

Impact of the COVID-19 Pandemic

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Cleanliness varies by

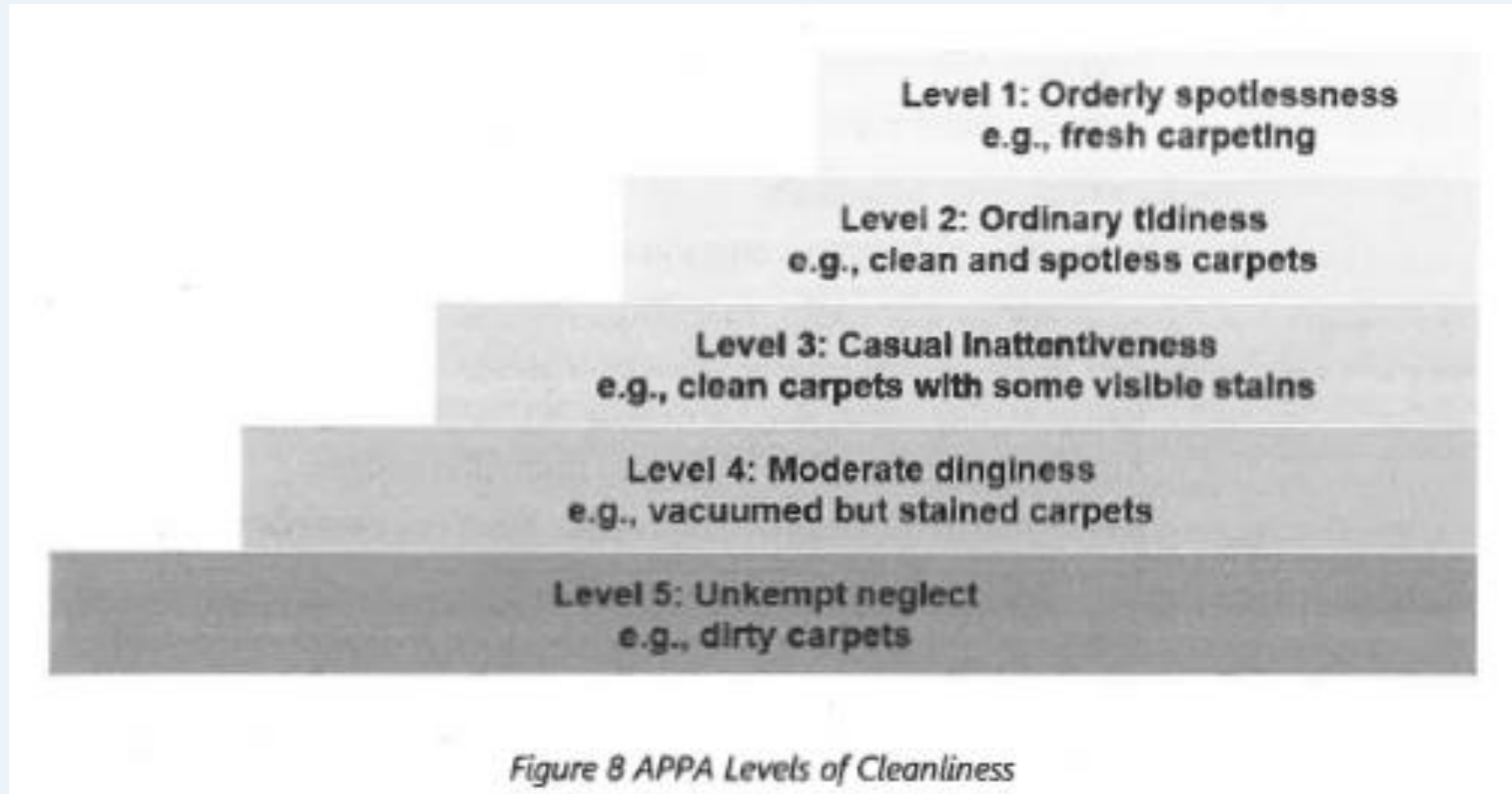
1-Culture

2-Industry type

3-Organization expectations



1-Indoor Environmental Quality (IEQ)



APPA Cleanliness Standards

Cleanliness Strategies

- 1-Assess and prioritize risks
- 2-Implement hygiene policy
- 3-Schedule professional services

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Cleanliness Strategies

4-Encourage employees to clean workstations

5-Ensure daily trash removal

6-Maintain clean floors

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1-Indoor Environmental Quality (IEQ)

2- Healthy & Effective Workplace



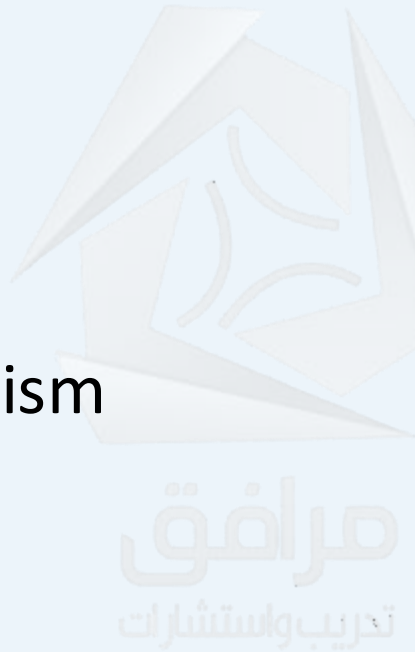
1-Indoor Environmental Quality (IEQ)

ROI of wellness programs every \$1 spent

\$3.27 reduction in medical

\$2.73 reduction in absenteeism

6-to-1 ROI (March 21, 2019)



Factors Affecting Well-Being & Productivity

1- Stress

2-Ergonomics

3-Health Maintenance



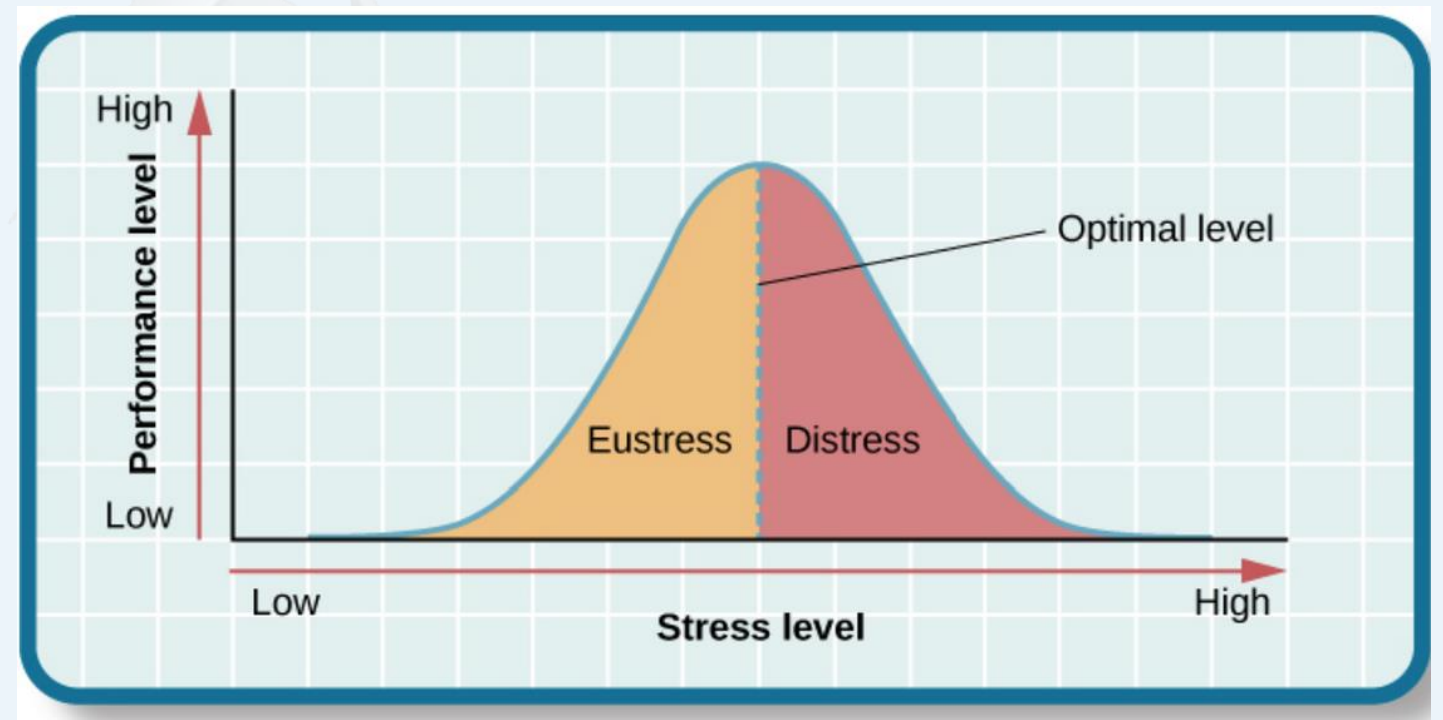
2- Healthy & Effective Workplace

1- Stress

Type:

Eustress (Positive Stress)

Distress (Negative Stress)



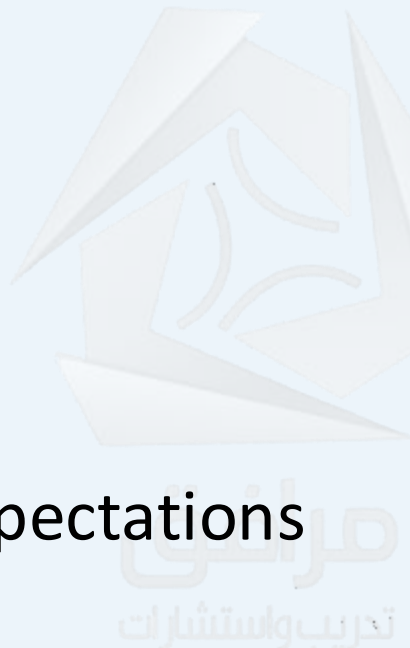
Workplace Stressors

New processes

Frequent overtime

External stressors

Mismatch between work expectations
and resources



FM Role in Reducing Stress

Implementing workplace designs
comfortable environmental conditions
clear workplace policies

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2-Ergonomics

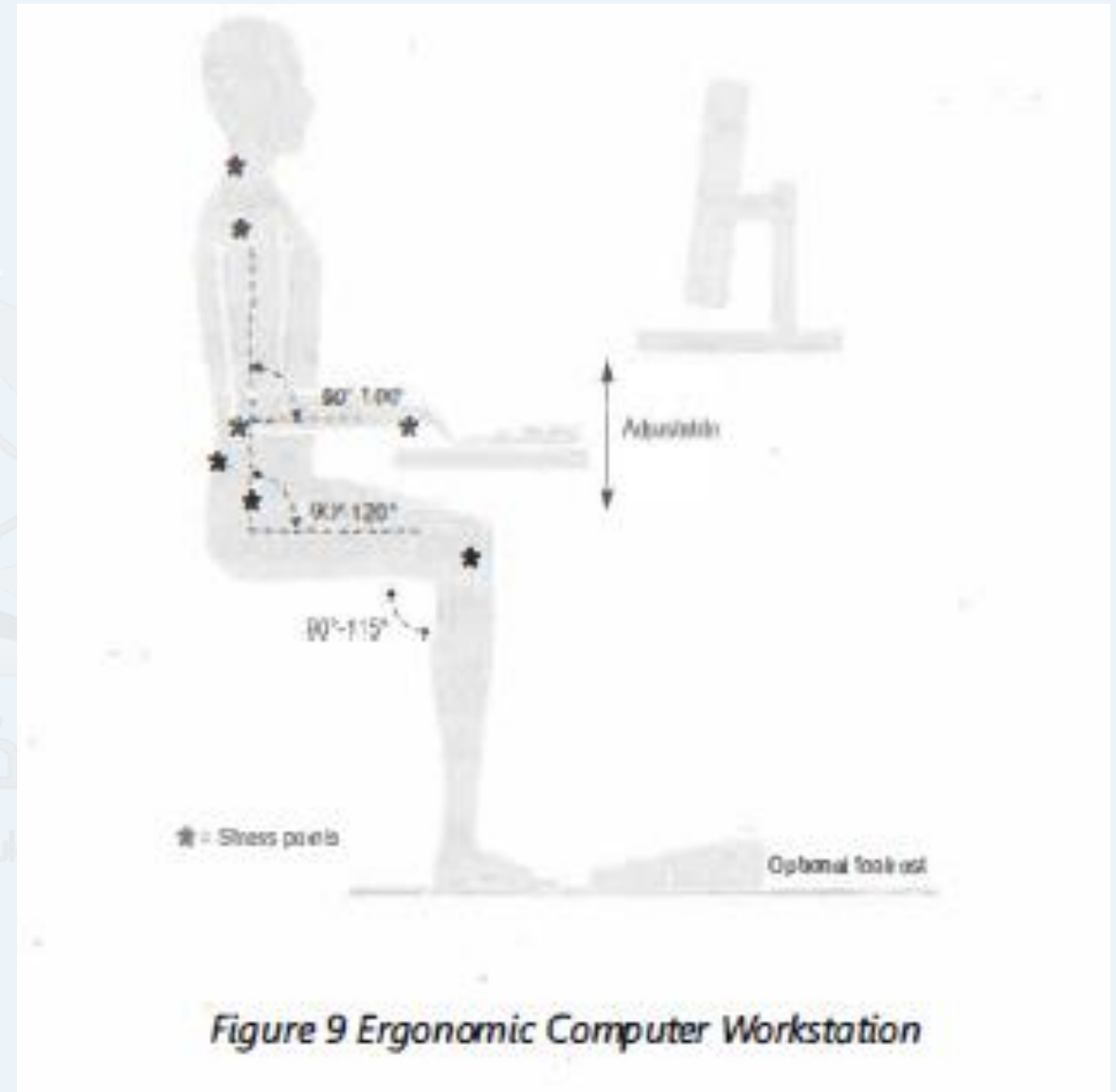


Benefits of Ergonomics

Increases productivity

Reduces injuries and claims

Lowens insurance costs



3-Health Maintenance Challenges in Sedentary

Diabetes and Heart Disease

Muscle Weakness

Workplace Infections (COVID-19)

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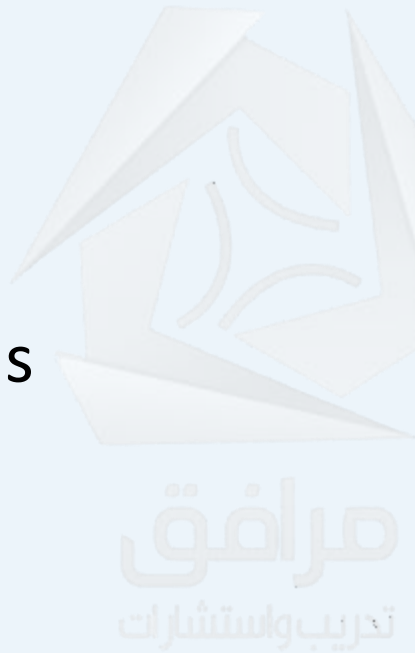


3-Health Maintenance Encouraging

Promote wellness programs

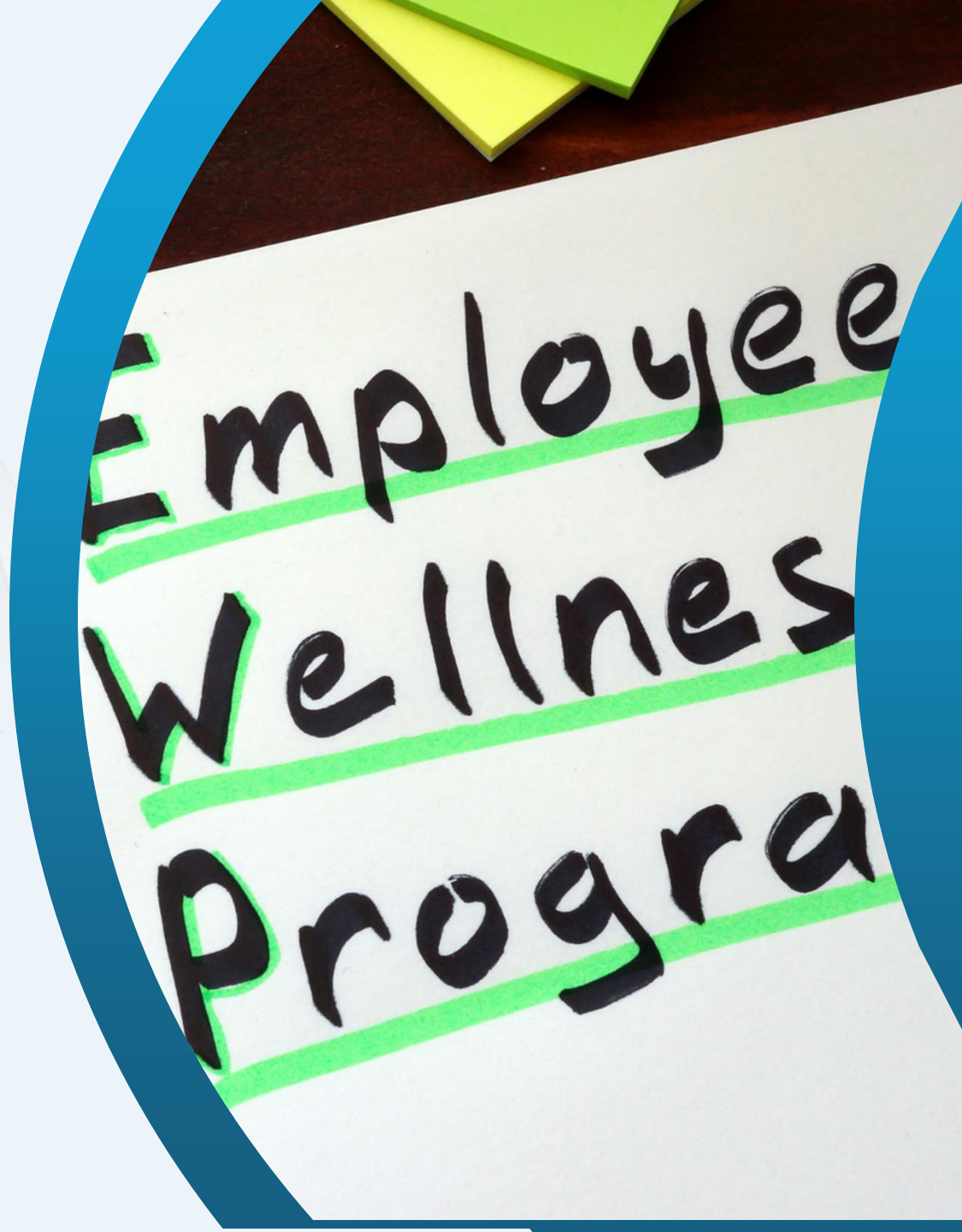
Provide healthier food options

Improve hygiene measures



3- Occupant Wellness

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3- Occupant Wellness

healthy workplace as
"a state of complete physical, mental,
and social well-being, and not merely
the absence of disease."

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W H O

FM responsibilities

Occupational health

Safety and security

Managing hazards



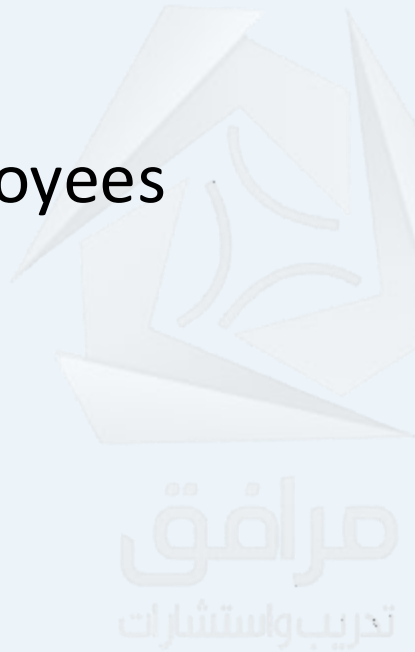
3- Occupant Wellness

FM responsibilities

Wellness programs for employees

workplace culture

Community engagement



3- Occupant Wellness

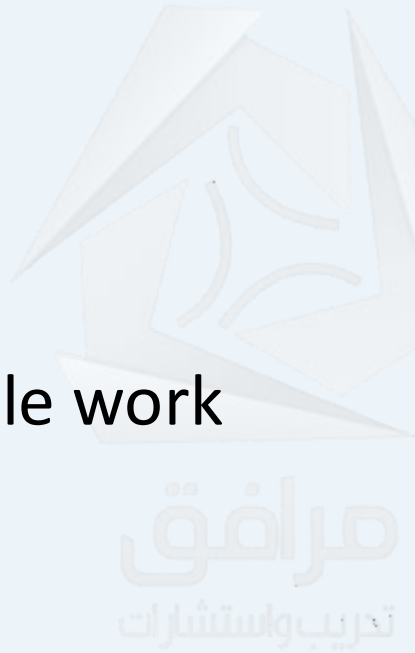
FM Can Support

Natural light access

Encourage movement

Work with HR to create flexible work policies

Offer healthier and meal options



3- Occupant Wellness

Drivers of change

1-Traditionalists (1925-1945)

2-Baby Boomers (1946-1964)

3-Generation X (1965-1980)



3- Occupant Wellness

Drivers of change

4-Millennials (1981-2000)

5-Generation Z (2001-2020)



3- Occupant Wellness

Strategies for Reducing Facility Footprint

Space based on work needs rather than status

Consolidating amenities

open floor plans

compact furniture and equipment



Strategies for Reducing Facility Footprint

Data storage to the cloud

electronic document storage

Telecommuting & hoteling

compact furniture and equipment



3- Occupant Wellness

Growth of Remote Work

2005 and 2017, telecommuting increased by 159% in the U.S.

Last decade, remote work grew by 91%, IFMA survey, over 50% of workplaces now offer unassigned workspaces



Chapter 3

Occupant Services

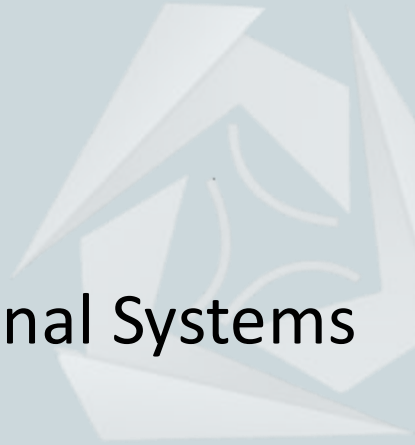
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Contents

1-Occupant Services

2-The Need to Manage Additional Systems



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1-Occupant Services



1-Occupant Services

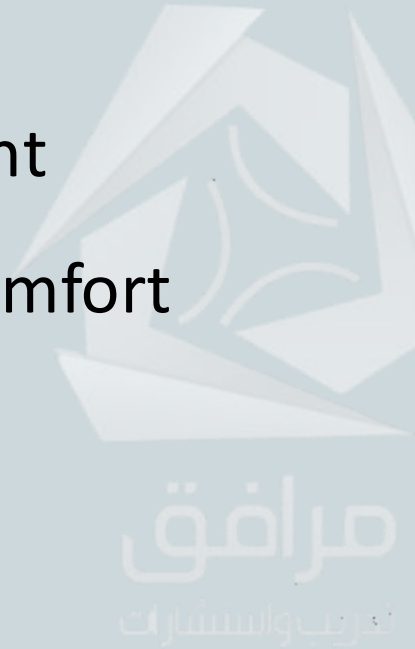
Objectives

Efficient and safe environment

Enhance productivity and comfort

Compliance

Reflect values and priorities



1-Occupant Services

Occupant Services in FM

Hard Service

Soft Services

(Direct Impact on Occupants):



Sustainability

Custodial with sustainable cleaning
Security measures protect occupants
landscaping support sustainability goals

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Challenges

Limited electrical capacity

Hidden environmental risks (asbestos,mold)

Indoor Air Quality (IAQ) concerns

2-The Need to Manage Additional Systems

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2-The Need to Manage Additional Systems

Unique Facility Systems

Life Support Systems

Medical Equipment

Data Centers

Research & Museum Facilities



2-The Need to Manage Additional Systems

Types of Documentation

Contracts

Service Level Agreements (SLAs)

Internal Agreements

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2-The Need to Manage Additional Systems

FM Service Agreements

Services provided

Services excluded

Financial arrangements

Modification procedures



2-The Need to Manage Additional Systems

Service Level Agreements (SLAs)

Prescriptive agreements

Performance-based agreements



2-The Need to Manage Additional Systems

Funding



Operating Budget



Capital Budget

2-The Need to Manage Additional Systems

Long-Term Budget Planning

Long-range budget for major capital projects

Use facility registers to track asset

Allocate funds for high-cost assets



Chapter 4

Creating a Safe and Secure Workplace

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Contents

- 1-Create a Safe Culture
- 2-Int. to Standards
- 3- Strategies
- 4-Create Safety Strategy
- 5-Create Security Strategy



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Facility and Building Safety

ISO 45001 occupational health and safety (OH&S)

OSHA (Occupational Safety and Health) US

NEBOSH (National Examination Board in Occupational Safety and Health) UK

Facility and Building Safety

ILO (International Labor Organization)

4% of global GDP (\$2.99 trillion) is lost
annually

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1-Create a Safe Culture



1-Create a Safe Culture

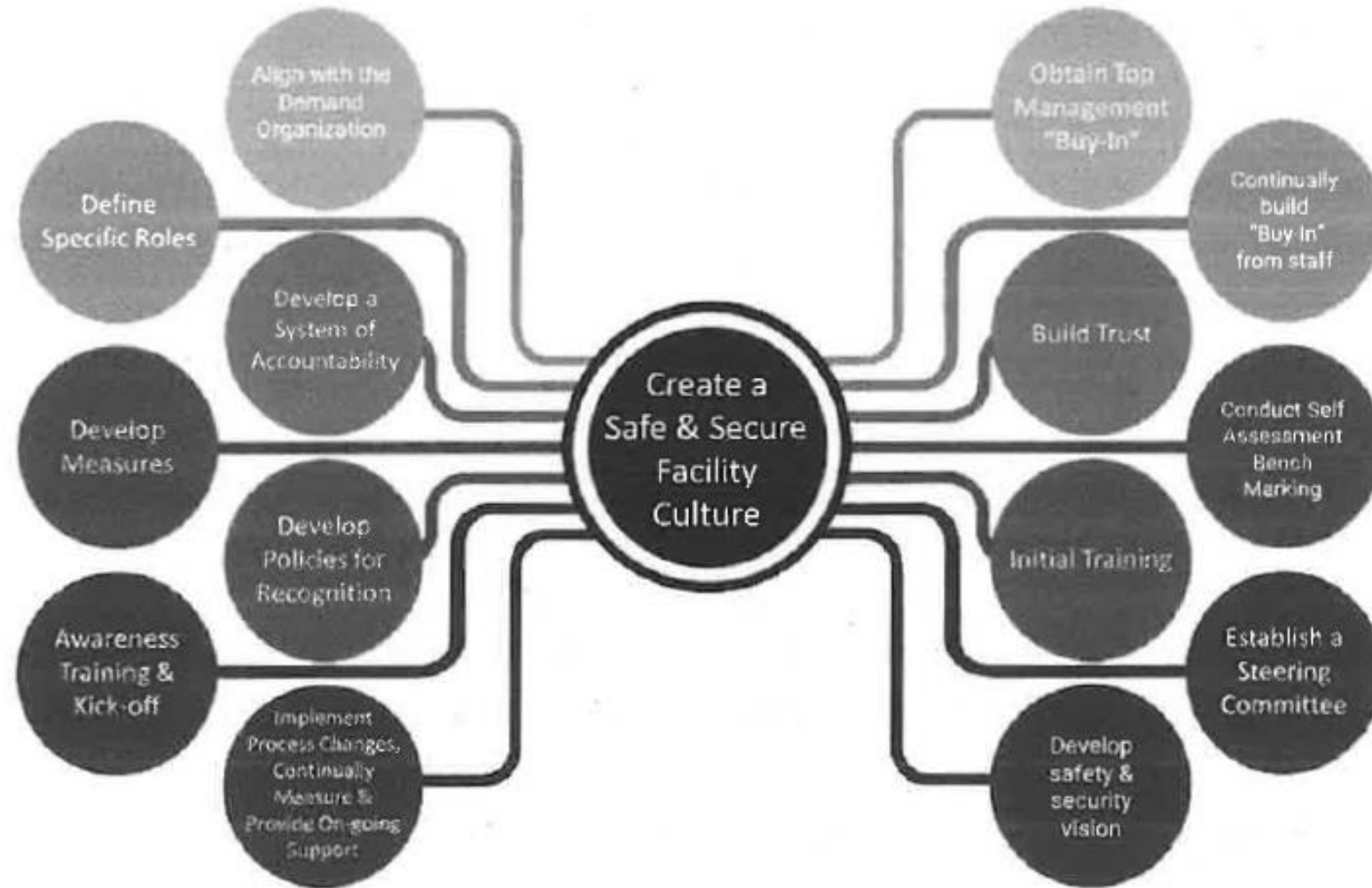


Figure 10 Shows processes that can be applied to creating a safe and secure facility culture

1-Create a Safe Culture

(OH&S) policy

1-Commitment

2-Objectives Framework

3-Compliance

4-Continuous Improvement



1-Create a Safe Culture

(OH&S) policy

5-Employee Participation

6-Effectiveness Review

7-System Adaptability



Ensure Management support



Situation Awareness

Three steps

1-Scanning the environment

2-Analyzing data

3-Decision-making

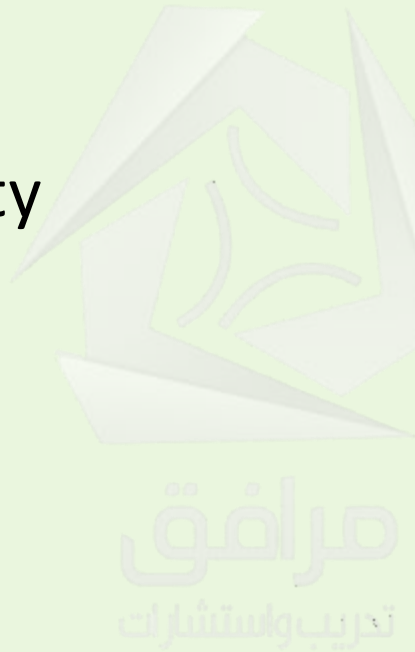


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OSHA's 10 Recommended in FM

- 1-Prioritize safety and security
- 2-Lead by example
- 3- A reporting system
- 4-Regular safety training
- 5-Scheduled inspections



1-Create a Safe Culture

OSHA's 10 Recommended in FM

6-Hazard control ideas

7-Effective hazard controls

8- Handle emergencies

9-Involve employees

10-improvements based on post-event reviews

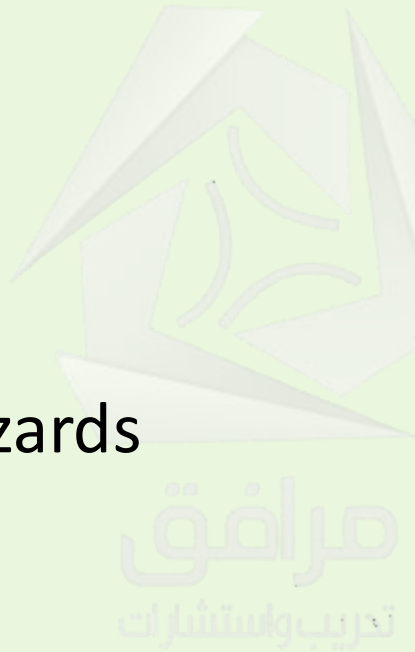


2-Introduction to Standards



OSHA's Six Guidelines

- 1-Identify workplace hazards
- 2-regular safety inspections
- 3-List and monitor health hazards



OSHA's Six Guidelines

- 4-Investigate incidents immediately
- 5-Prepare for emergencies
- 6-Assess and prioritize hazard control measures

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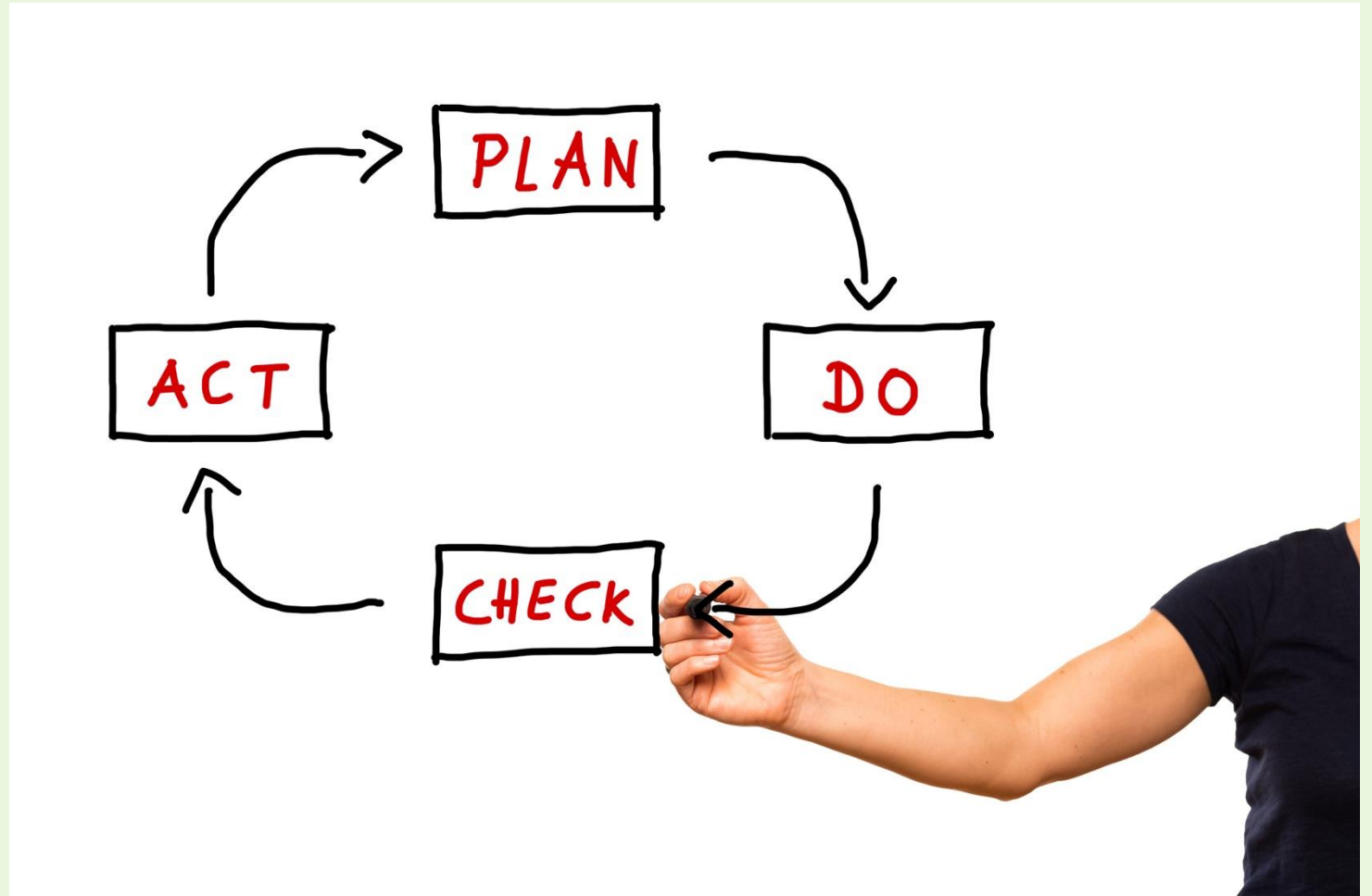
Core Structure of ISO 45001 (PDCA Model)

Plan

Do

Check

Act



Benefits of ISO 45001

Reduction in workplace incidents

Lower absenteeism and staff turnover

Decreased insurance costs

Stronger leadership commitment

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ISO 22301: BC Management Systems

Implement, maintain, and improve BC
Reduce the likelihood affecting business
operations.

Prepared to disruptions when they occur

Ensure a swift recovery process



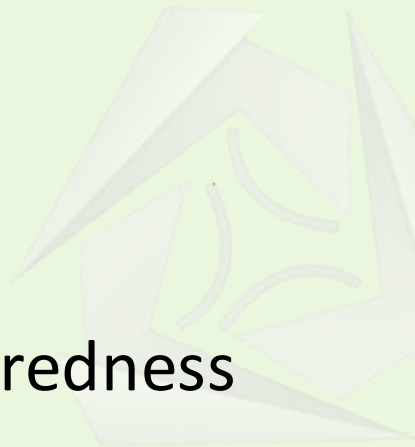
ISO
22301
CONTINUITY MANAGEMENT SYSTEMS

ISO 22301 Guidance On

Operational resilience

Emergency planning & preparedness

Crisis management



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ISO 22301 Guidance On

Disaster recovery

Supply chain security

Planning for loss of critical resources

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ISO
22301
CONTINUITY MANAGEMENT SYSTEMS

Emergency Response Plan Key Components

- 1-Establishing procedures
- 2-Training
- 3-Regular drills and exercises



Emergency Response Plan Key Components

4-Evaluating performance

5-Communicating emergency
procedures

6-Considering the needs and capabilities



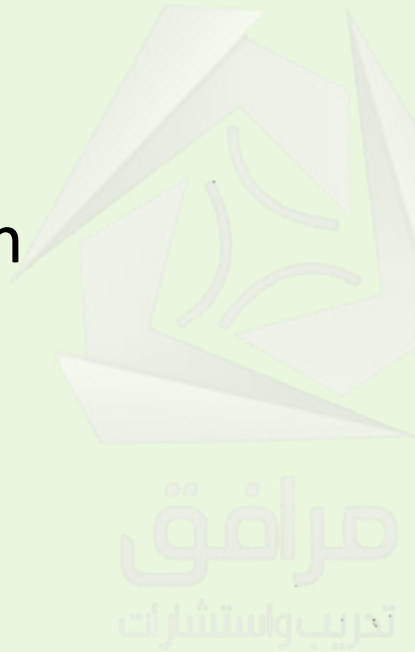
Key Elements of an Emergency Plan

- 1-Identify Mission-Critical Systems
- 2-Maintain an Updated List
- 3-Protect Critical Equipment & Assets
- 4-Develop Action Checklists

A large, semi-circular graphic on the right side of the slide. It features a yellow folder or book with the words "EMERGENCY PLAN" printed in bold, black, sans-serif capital letters. The folder is resting on a wooden surface with a visible grain. A blue circular arc frames the top and left sides of the folder. In the background, there is a faint watermark of a green and white geometric logo and the Persian text "مرافق" (Marafiq) and "تجرب و استشارات" (Tajrib va Estesharat).

Essential Training Requirements

- 1-First Aid & CPR Certification
- 2-Training on documented
- 3-Scenario-Based Drills
- 4-Use of FEMA resources



3- Strategies to Increase Safety and Security



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3- Strategies to Increase Safety and Security

Safety and security committees

Assess workplace risks

Evaluate

Develop and endorse policies

Implement training programs



3- Strategies to Increase Safety and Security

Role of FM in Identify Risk

Analyze accident reports

Work with safety & security officers

Partner with insurers



3- Strategies to Increase Safety and Security

Role of FM in Identify Risk

Conduct facility walkthroughs

Observe employees & technicians

Document hazardous materials



4- Create a Facility Safety Strategy

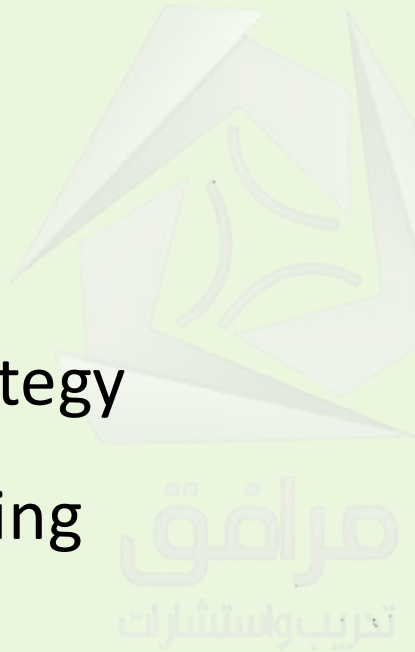
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4- Create a Facility Safety Strategy

Steps

- 1-Identify Risks
- 2-Planning Safety Strategy
- 3- Implementing Safety Strategy
- 4-Evaluating and Implementing
Corrective Action



4- Create a Facility Safety Strategy

Planning a Facility Safety Strategy

Policies & Work Rules

Prevention Measures

Mitigation Tactics

Auditing & Compliance



4- Create a Facility Safety Strategy

Implementing a Facility Safety Strategy

Timing & Communication

Gaining Management Support

Feedback from Occupants & Staff

Avoiding Message Fatigue



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4- Create a Facility Safety Strategy

Training and Promoting Behavior

Training New Employees

Regularly update training

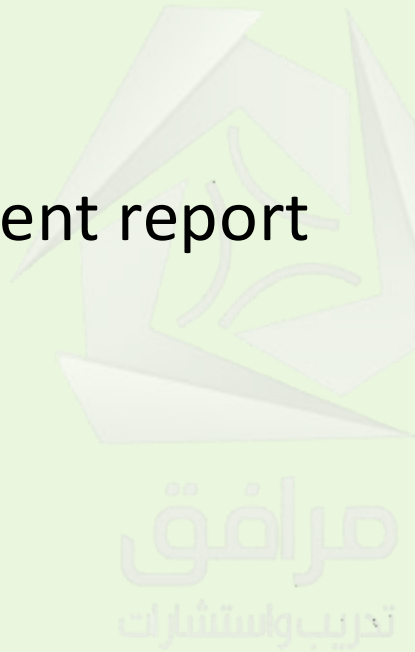
Retraining & Knowledge Refreshers



4- Create a Facility Safety Strategy

Incentivizing Safe Behaviors

Avoid rewards based on accident report rates



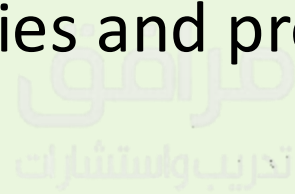
4- Create a Facility Safety Strategy

Instead , reward Action such as:

High department scores on safety tests.

Proactive identification and resolution

Consistent compliance with policies and procedures



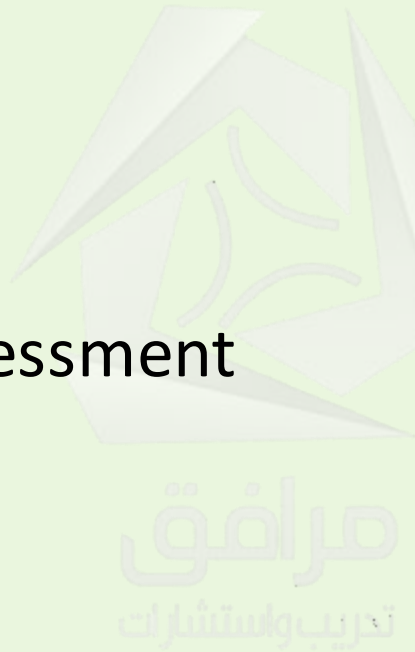
4- Create a Facility Safety Strategy

Evaluating and Implementing Corrective Action

Regularly review

Conduct an annual safety assessment

Engage the safety committee



4- Create a Facility Safety Strategy

Safety Committee Review

Incident data

Inspection results

Safety training records

Facility changes



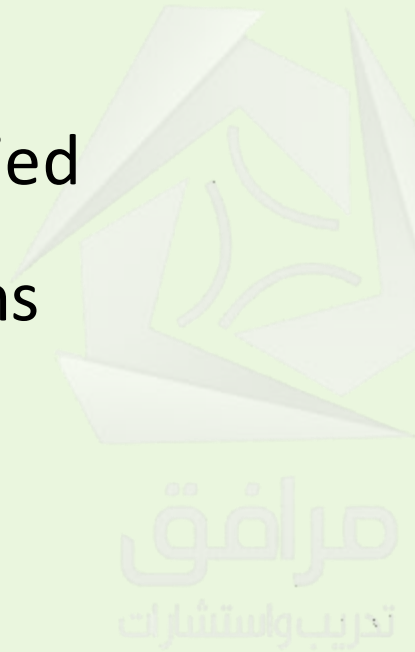
4- Create a Facility Safety Strategy

Incident Investigation

Causes are accurately identified

Appropriate corrective actions

Utilize safety committees



4- Create a Facility Safety Strategy

Safety and Third Parties

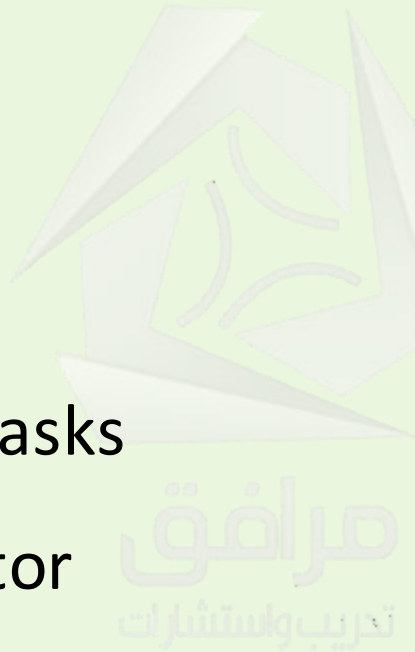
Pre-qualify contractors

Provide safety training

work permits for hazardous tasks

safety compliance in contractor

agreements



4- Create a Facility Safety Strategy

Signage

Wayfinding

Safety & Hazard Warnings

Regulatory Compliance



5- Create a Facility Security Strategy



5- Create a Facility Security Strategy

Steps

- 1-Identify Risks
- 2-Planning Security Strategy
- 3- Implementing Security Strategy
- 4-Evaluating the Security Strategy



5- Create a Facility Security Strategy

Identifying Security Risks

Physical & Cyber Threats

High Visitor Traffic

Internal Workplace Risks

Data Breaches



Risk Identification Methods

Facility Walkthroughs

Security Audits

Reviewing Incident Reports

Benchmarking & Industry Comparisons



5- Create a Facility Security Strategy

Planning a Facility Security Strategy

1-Policies & Work Rules

2-Policies & Work Rules

3-Mitigation Tactics



Planning for Facility Security

1-Deter

2-Detect

3-Delay

4-Defend



5- Create a Facility Security Strategy

Evaluate Facility Security

Reports from organizational committees

Changes in theft rates

Vandalism reports

Communication and training events

مرافق
تدريب واستشارات

