APRIL **2019** REPORT

THE STATE OF AGING BUILDINGS:

TODAY'S BUILDING MANAGEMENT CHALLENGES

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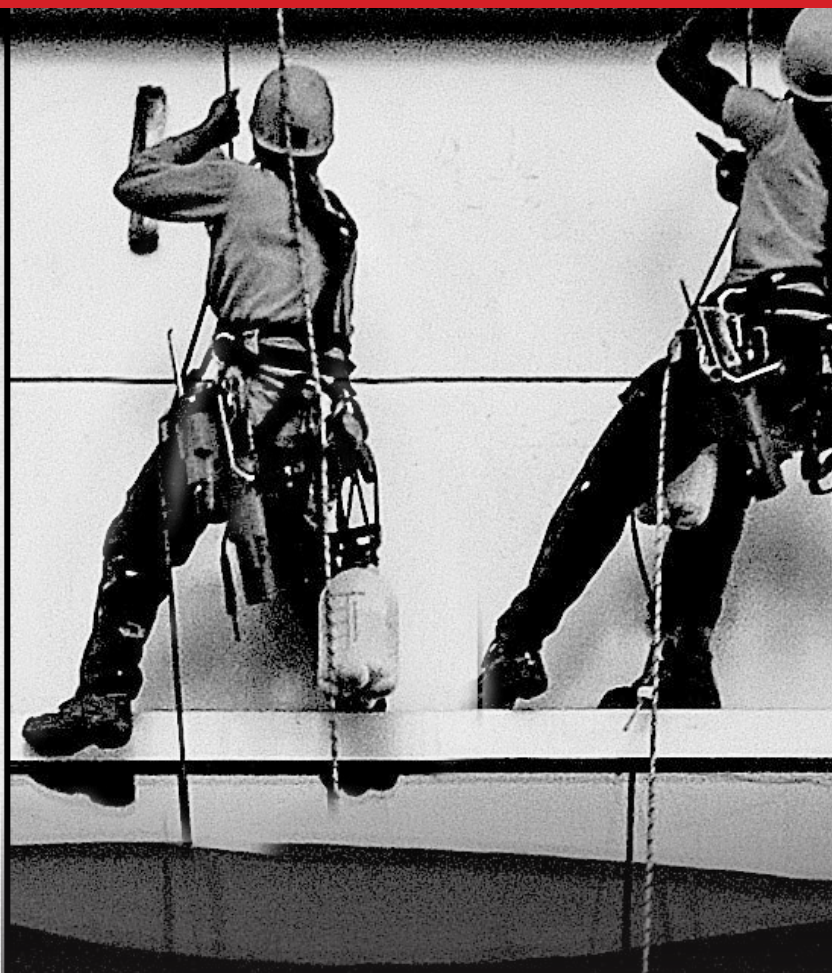
In an era where greater than 72% of U.S. buildings were built before 2000, operating and upgrading older buildings is becoming a primary challenge for property and maintenance managers. In early 2019, Grainger surveyed greater than 1,000 professionals who purchased building maintenance supplies during the past five years. We wanted to learn more about how building managers are coping with their biggest operational, maintenance, and renovation challenges and what they believe to be the most critical areas to address in older buildings.

Through this process, we uncovered some consistent themes. First, managers of aging facilities are spending a significant amount of time evaluating older assets to determine the best course of action and when to take it. Scheduling a building upgrade to a significant system, for example, must have as little impact on the core business as possible. This is especially critical for aging healthcare facilities and other buildings that operate 24/7.

Second, finding parts for aging assets is a consistent issue and the primary factor when deciding to repair or replace. Once parts become unavailable and retrofitting a legacy system will no longer be an option, it's time to plan and budget for a system upgrade.

Third, building managers have to weigh their options for bringing in third-party providers. Can they plan for and do the work in-house? Or does it make more sense to bring in experts who can help them assess the condition of their aging assets and plan for and prioritize upgrade projects?

Lastly, managing costs, planning and budgeting is an ongoing issue among respondents, especially when it comes to inefficient energy use. Making sure older environments are both safe and energy efficient is driving up maintenance costs, particularly when it comes to lighting, electrical, plumbing, and HVAC.



> *"At some point, the age of the asset and its performance indicate that you need to upgrade the asset and come up with a more efficient solution. What's the ROI if you replace or upgrade the equipment?"*
>
> *- Survey Respondent*

Respondents identified these as their biggest challenges:

- Finding older parts or new ones that will integrate with older systems
- Managing energy use more efficiently, particularly in lighting, electrical and HVAC
- Keeping a safe environment
- Lowering costs

Respondents identified the following areas as the most critical to address for older buildings:

- **71%** Roof
- **71%** Electrical
- **66%** HVAC
- **66%** Plumbing
- **59%** Lighting

> *“Cost is a big driver – is it cheaper to rip out and put new in or is it cheaper to just stick an antenna in the ceiling to do the same thing?”*
> *- Survey Respondent*

Survey respondents represented a wide range of industries, business sizes and job titles.

INDUSTRY

26% Contractors

16% Heavy Manufacuring

12% Light Manufacuring

9% Commercial Services

COMPANY SIZE

49% Have 30 or Fewer Employees

27% Have More than 100 Employees

ROLE

29% Purchasing Agent

26% Executive, Owner, or Partner

22% Supervisor

21% Department or Group Manager

20% Administrative

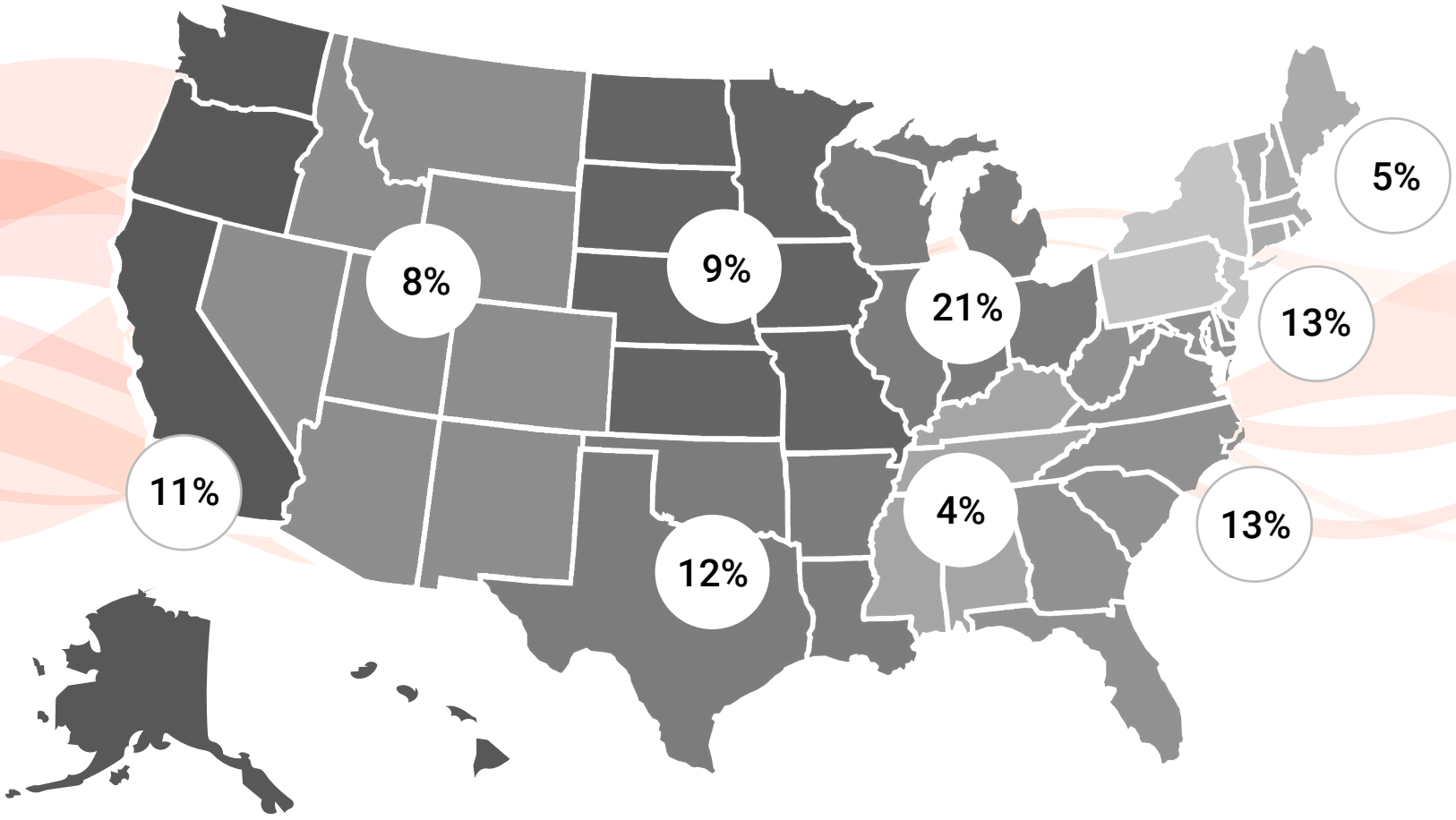
14% Engineer

8% Laborer

8% Sales

Percentages represent significant responses or some overlap (so do not add up to 100).

Survey Respondents By Region



57% of respondents have made upgrades, improvements, and/or repairs to an older building's infrastructure in the last five years.

2% Outside of the United States

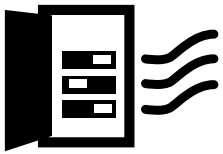
2% Other or location not indicated.

When does it make sense to commit to a system or building upgrade? Respondents clearly identified that emergency repairs, broken parts with no option for replacement, or planned renovations are the primary factors when making their decision.

Primary and Secondary Decision Factors for Making Building Updates or Changes

	PRIMARY	SECONDARY
Emergency Repair	62.08%	27.58%
Broken Part and Cannot Get Replacement	61.85%	28.34%
Planned Renovation to Section of Building	48.02%	40.20%
Building's Use Is Changing	40.43%	37.39%
Regulatory Changes	37.08%	39.36%

> *"As the building gets older, we have circuit breakers that have fuses that you can't even get anymore."*
> *- Survey Respondent*



Among the companies surveyed, **48%** of respondents said they are planning overall building improvements. Survey respondents also indicated that they are planning improvements or upgrades to the following components:

64% Lighting

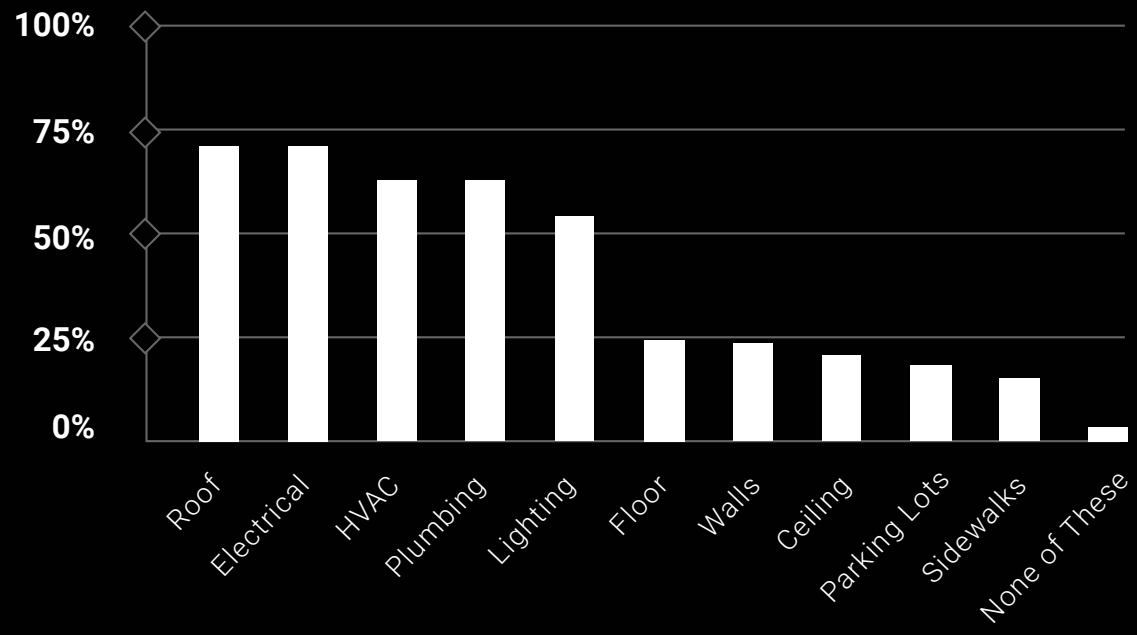
61% Electrical

56% HVAC

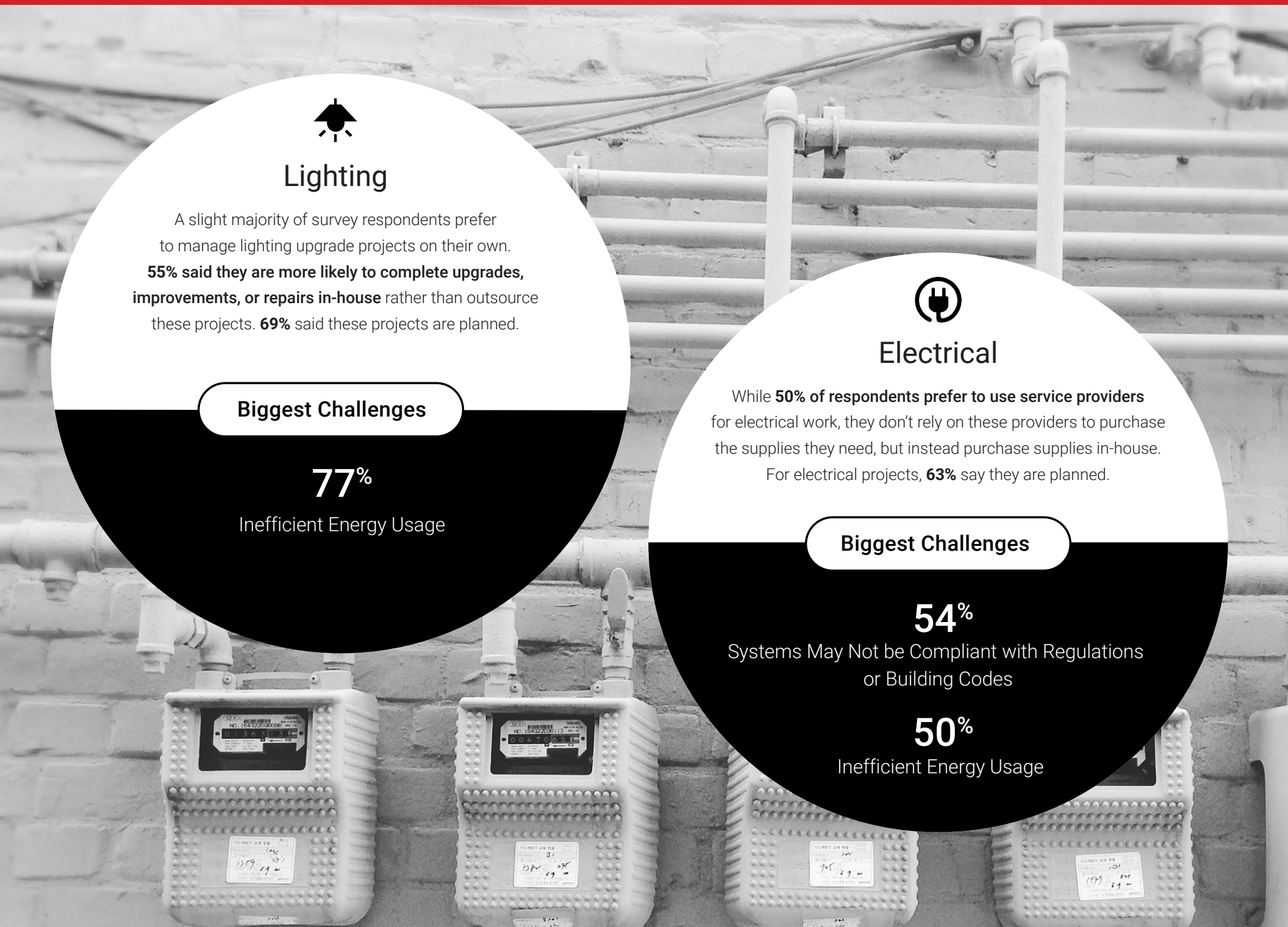
48% Plumbing

59% Exterior & Shell

Respondents identified electrical systems and roofing as the most critical areas to address in an older building. Here are the primary areas of concern and how they rank in importance:



WHAT GETS PRIORITY AND WHO DOES THE WORK?



Lighting

A slight majority of survey respondents prefer to manage lighting upgrade projects on their own. **55% said they are more likely to complete upgrades, improvements, or repairs in-house** rather than outsource these projects. **69%** said these projects are planned.

Biggest Challenges

77%

Inefficient Energy Usage

Electrical

While **50% of respondents prefer to use service providers** for electrical work, they don't rely on these providers to purchase the supplies they need, but instead purchase supplies in-house. For electrical projects, **63%** say they are planned.

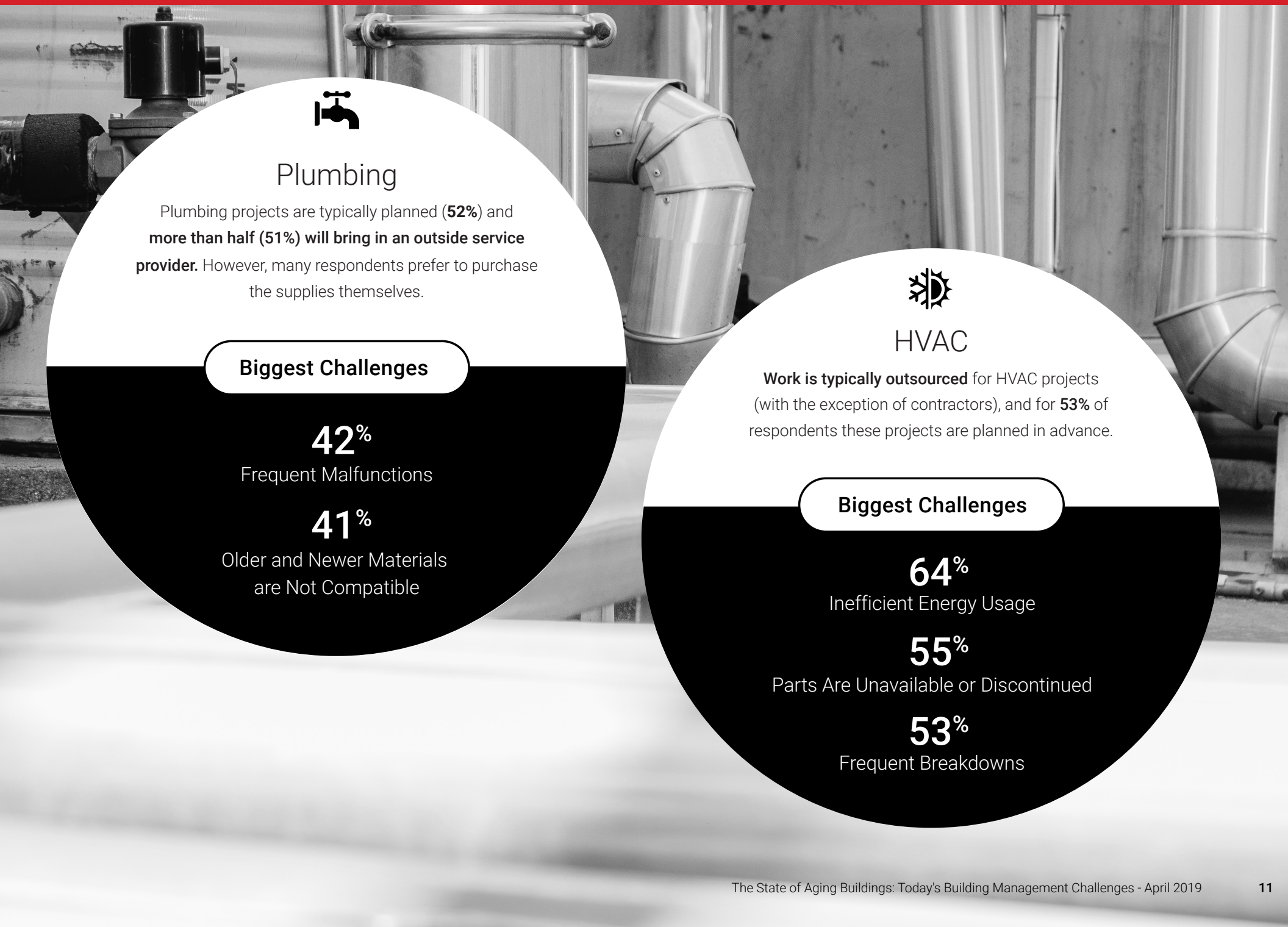
Biggest Challenges

54%

Systems May Not be Compliant with Regulations or Building Codes

50%

Inefficient Energy Usage



Plumbing

Plumbing projects are typically planned (**52%**) and **more than half (51%) will bring in an outside service provider.** However, many respondents prefer to purchase the supplies themselves.

Biggest Challenges

42%
Frequent Malfunctions

41%
Older and Newer Materials are Not Compatible

HVAC

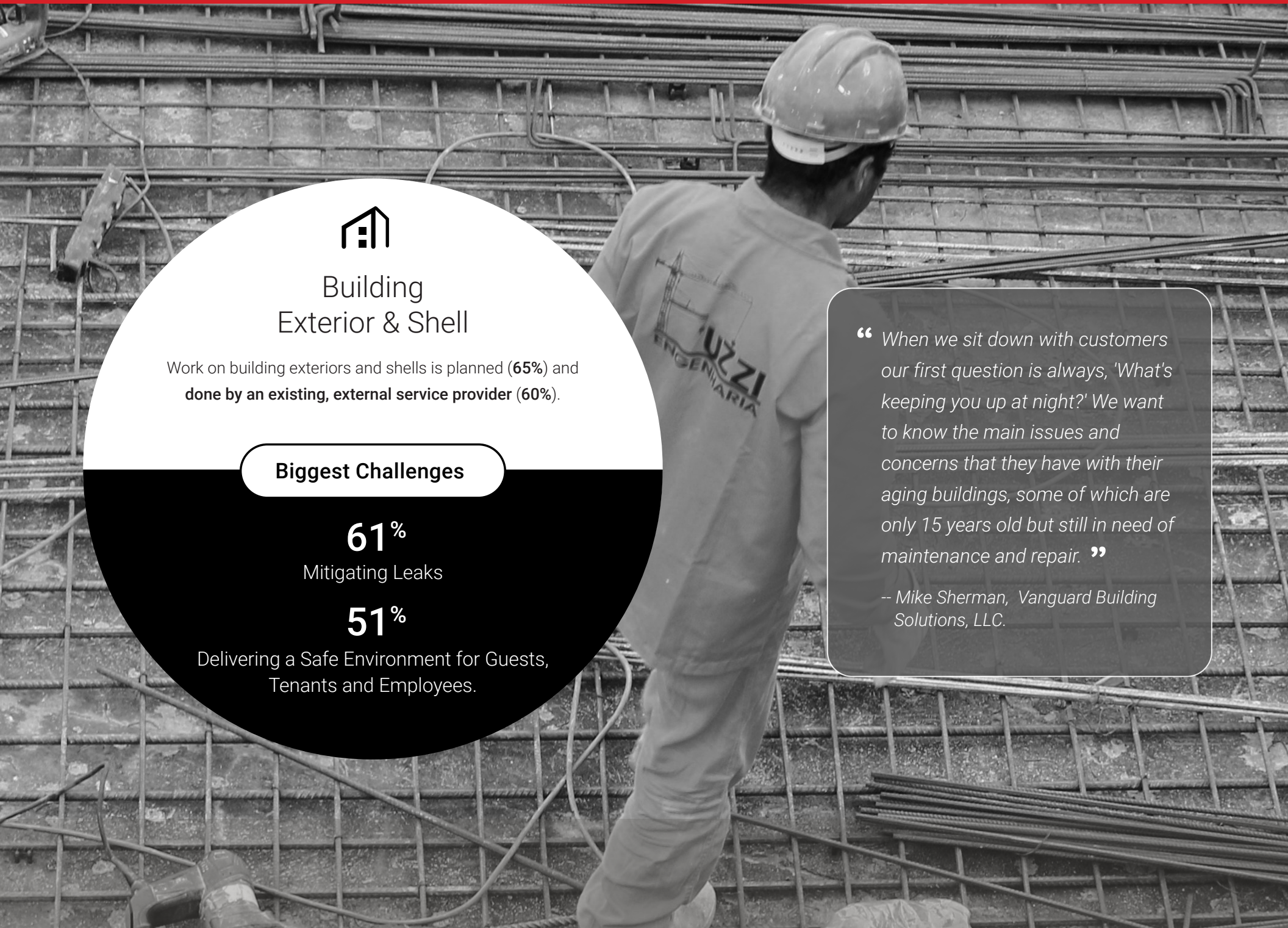
Work is typically outsourced for HVAC projects (with the exception of contractors), and for **53%** of respondents these projects are planned in advance.

Biggest Challenges

64%
Inefficient Energy Usage

55%
Parts Are Unavailable or Discontinued

53%
Frequent Breakdowns



Building Exterior & Shell

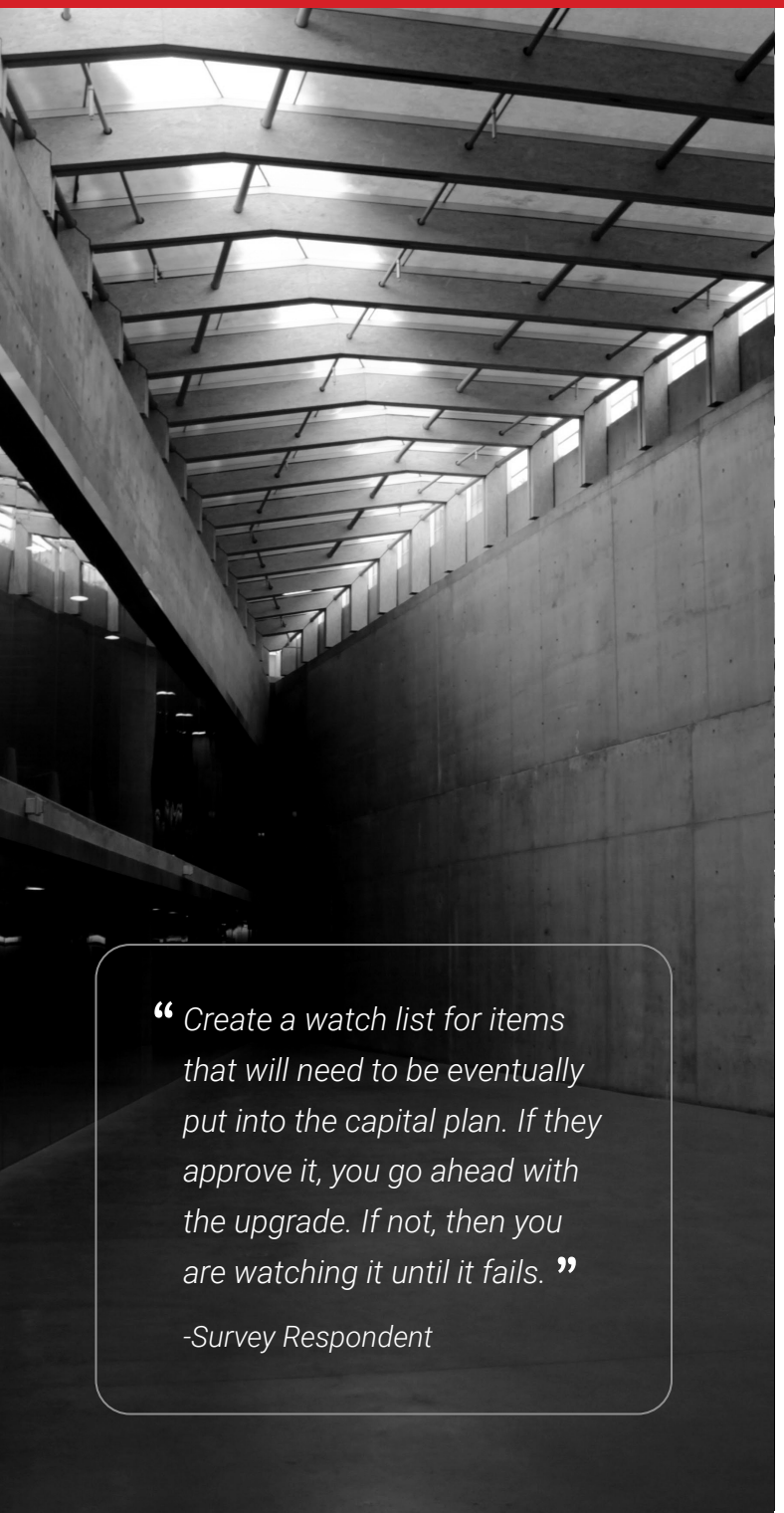
Work on building exteriors and shells is planned (**65%**) and **done by an existing, external service provider** (**60%**).

Biggest Challenges

61%
Mitigating Leaks

51%
Delivering a Safe Environment for Guests, Tenants and Employees.

> *"When we sit down with customers our first question is always, 'What's keeping you up at night?' We want to know the main issues and concerns that they have with their aging buildings, some of which are only 15 years old but still in need of maintenance and repair."*
>
> *-- Mike Sherman, Vanguard Building Solutions, LLC.*



> *“Create a watch list for items that will need to be eventually put into the capital plan. If they approve it, you go ahead with the upgrade. If not, then you are watching it until it fails.”*
>
> *-Survey Respondent*

A multiyear preventive maintenance plan will keep your building running with as little disruption as possible to your business operations.

Here's how to put a plan together:

Conduct an overview of your systems, piece by piece.
Examine the condition of existing systems, then determine if the system is adequate for present use. The system is in “poor” condition if it requires a major system replacement and “fair” if it requires a strategic replacement to extend its lifecycle. If only minor repairs or upgrades are required, the system is in “good” condition.

Perform a complete evaluation of the building’s systems.
Collect available data on space utilization, energy management, building management, and technology. Determine what critical actions must be addressed immediately, and then tackle other less pressing ones by proactively scheduling them over the course of a multi-year period.

Enlist outside help. Find someone who will walk around your facility and say, 'These HVAC systems are 20 years old and in poor condition; you should really start putting a plan together to replace them or you're going to wind up with critical failure.' From there, you can determine the condition of each system and go about prioritizing what to do first.

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Develop a budget. First, plan for routine care, then examine the lifecycle of more costly equipment. Put a contingency fund in place. Finally, be prepared to reevaluate and reassess your building throughout the year.

Get the right people involved. Determining the key stakeholders in the facility maintenance program helps staff understand their roles and responsibilities. Classify responsibility and designations of duties, both of which are crucial to the maintenance program. And make sure the executive team is involved in the process, be it the VP of operations, the CFO, and/or the CEO, all of whom should already understand the expense of replacing something after it's broken down and no longer usable.

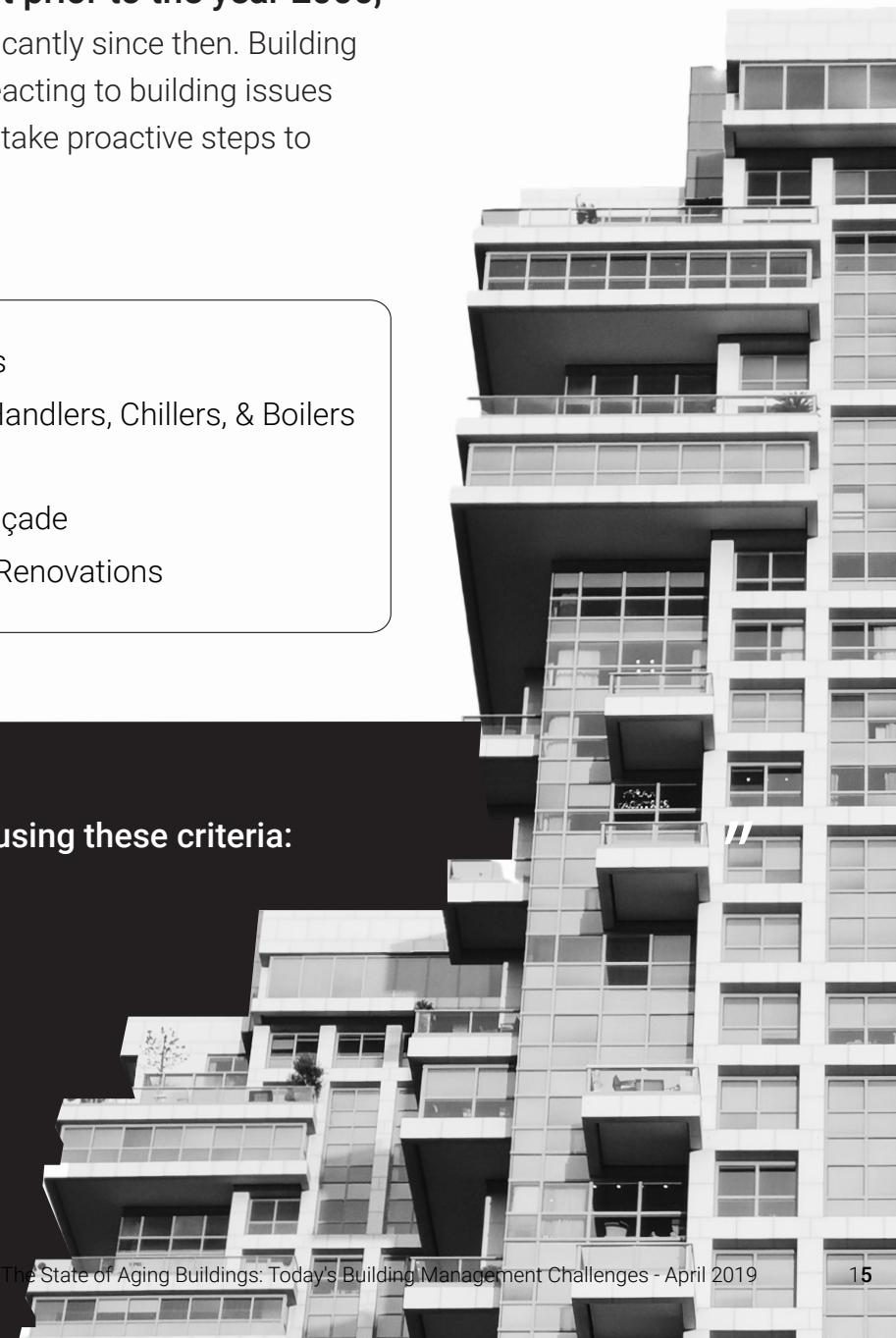
Considering that 72% of current buildings in the U.S. were built prior to the year 2000, technologies for energy-saving lighting, for example, have improved significantly since then. Building managers today know that maintenance and upgrades aren't just about reacting to building issues and system performance anymore. They also know how important it is to take proactive steps to prevent future problems.

Companies Surveyed Are Considering These Upgrades In the Near Future:

- ✔ Aging Control Systems
- ✔ Roofing
- ✔ Elevator Systems
- ✔ Plumbing
- ✔ Lighting
- ✔ Fire Alarms
- ✔ HVAC Air Handlers, Chillers, & Boilers
- ✔ Windows
- ✔ Building Façade
- ✔ Restroom Renovations

To develop a business case for these investments, customers are using these criteria:

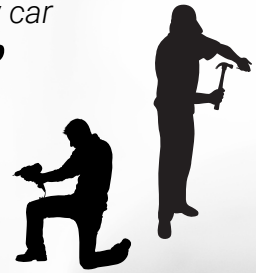
- ✔ Cash Benefit (ROI)
- ✔ Risk
- ✔ Safety
- ✔ Quality Control (Manufacturing, Business Operations, etc.)
- ✔ Comfort

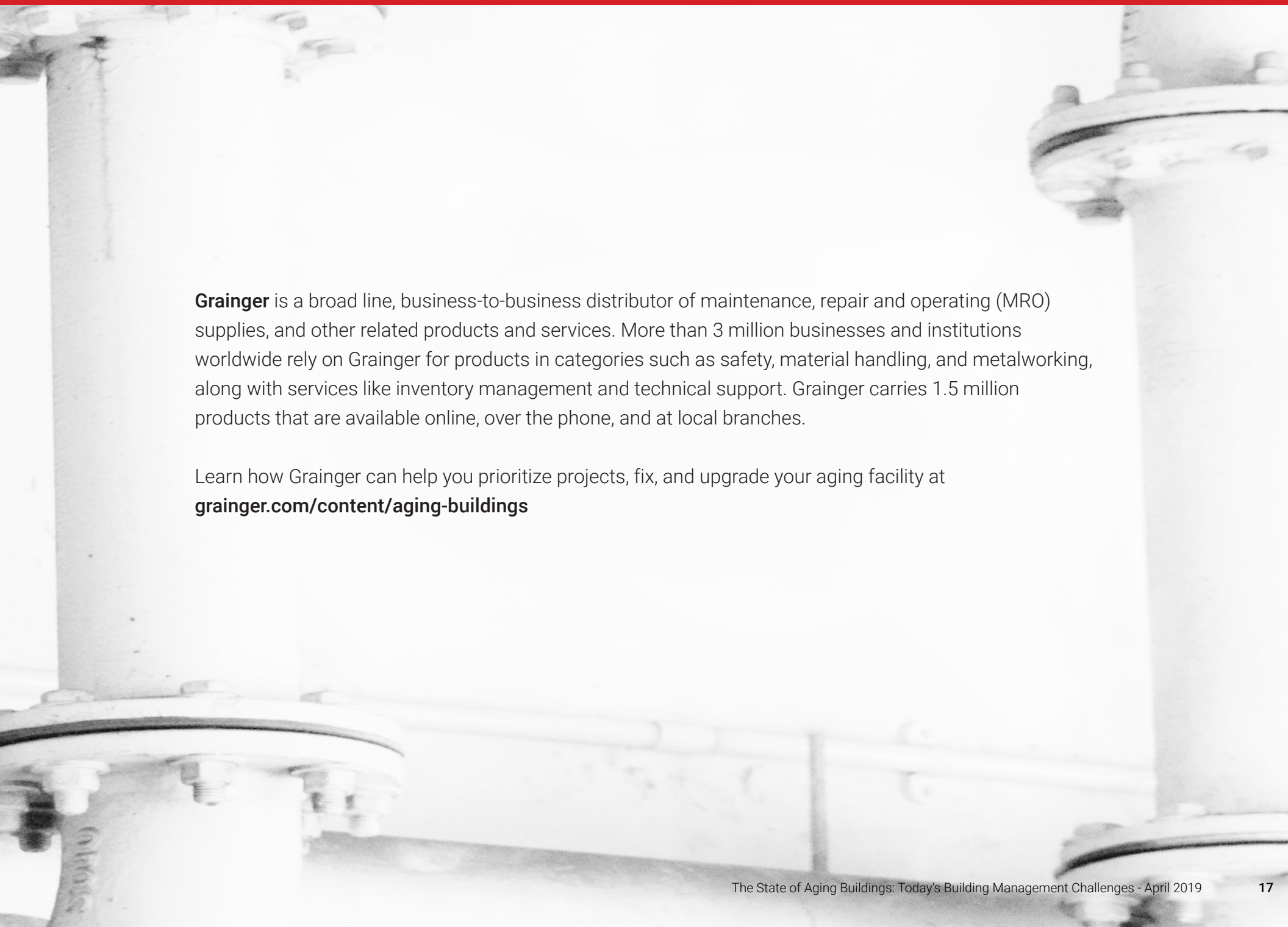


As the nation's building infrastructure continues to age, the need for dedicated maintenance and upgrade programs will also grow. Electrical systems and roofs will be key priorities going forward as companies strive to create safe workspaces that are more energy-efficient and technology-friendly. Other key areas they will address include lighting, plumbing, and HVAC systems, as well as the building shell.

By conducting regular facility audits, staying on top of maintenance and repairs, and investing in new equipment that helps their facilities run more efficiently (and with less downtime), companies can derive more value from their aging structures.

> *"When we can't get parts anymore or replacements don't last or don't work, then we move to upgrade. Similar to an old car – I want to keep my car as long as possible until everything starts breaking down a little bit. Then at what time do I start looking for a new car because it's too much? You have to make an engineering judgment on everything."*
> *- Survey Respondent*





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