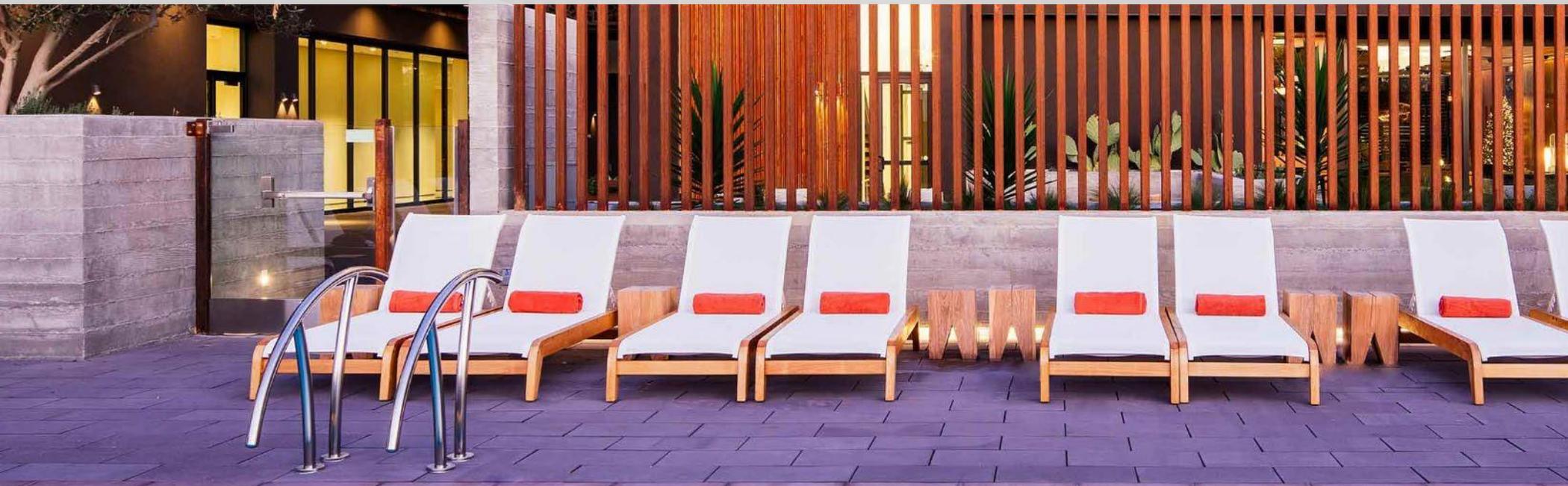




ALUMINUM BUILDING AND CONSTRUCTION USAGE STUDY

April 2021





EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

1

ALUMINUM IN RESIDENTIAL BUILDING AND CONSTRUCTION TO GROW 8% CAGR PER YEAR, EXPECTED TO SURPASS MID-2000's USAGE BY 2024

Shift in demand from homeowners and wave of new institutional investors driving significant shifts to construction spending, spurring aluminum demand through 2024

2

ALUMINUM USAGE IN CONSTRUCTION RISING – WILL DRIVE +154 MILLION LB OF ADDITIONAL ALUMINUM USAGE DUE TO DESIGN SHIFTS

Shift towards higher density SURBAN living + modern designs using low-maintenance materials a tailwind for aluminum cladding, windows, and doors/screens. Growth of accessory dwelling units will drive incremental aluminum usage 2020-25

3

SIGNIFICANT FURTHER UPSIDE TO ALUMINUM PENETRATION POSSIBLE: POTENTIAL FOR + 300MM LB TO ANNUAL ALUMINUM USAGE BY 2025

JBREC recommends six practical strategies to boost aluminum usage in building and construction

Source: John Burns Real Estate Consulting LLC (Pub: April 2021)

FOUR TRENDS DRIVING ALUMINUM USAGE HIGHER IN CONSTRUCTION 2020-2024

1 SHIFT TO SUBURBAN LIVING AND CONTEMPORARY COMMERCIAL PROJECTS

Shift towards higher density living + modern designs using low-maintenance materials a definite tailwind for aluminum cladding, windows, and doors/screens

2 MODULAR CONSTRUCTION & INCREASED ADOPTION OF ACCESSORY DWELLING UNITS

Shift to infill development and modular construction drive more usage of aluminum products

3 ALUMINUM CONVERSION VS VINYL

Value proposition of modern aluminum cladding vs vinyl similar to conversion to premium composite decking vs wood – shift to premium, environmentally friendly product for owners staying in home longer

4 PIPELINE OF AGING ROOFING WILL DRIVE RECOVERY AS WAVE OF LONGER-LIFE ROOFS REACH END OF LIFE BY 2025

Aluminum roofing to grow faster than asphalt, in addition to gutter and downspout lift from reroof volume by 2025

Source: John Burns Real Estate Consulting LLC (Pub: April 2021)

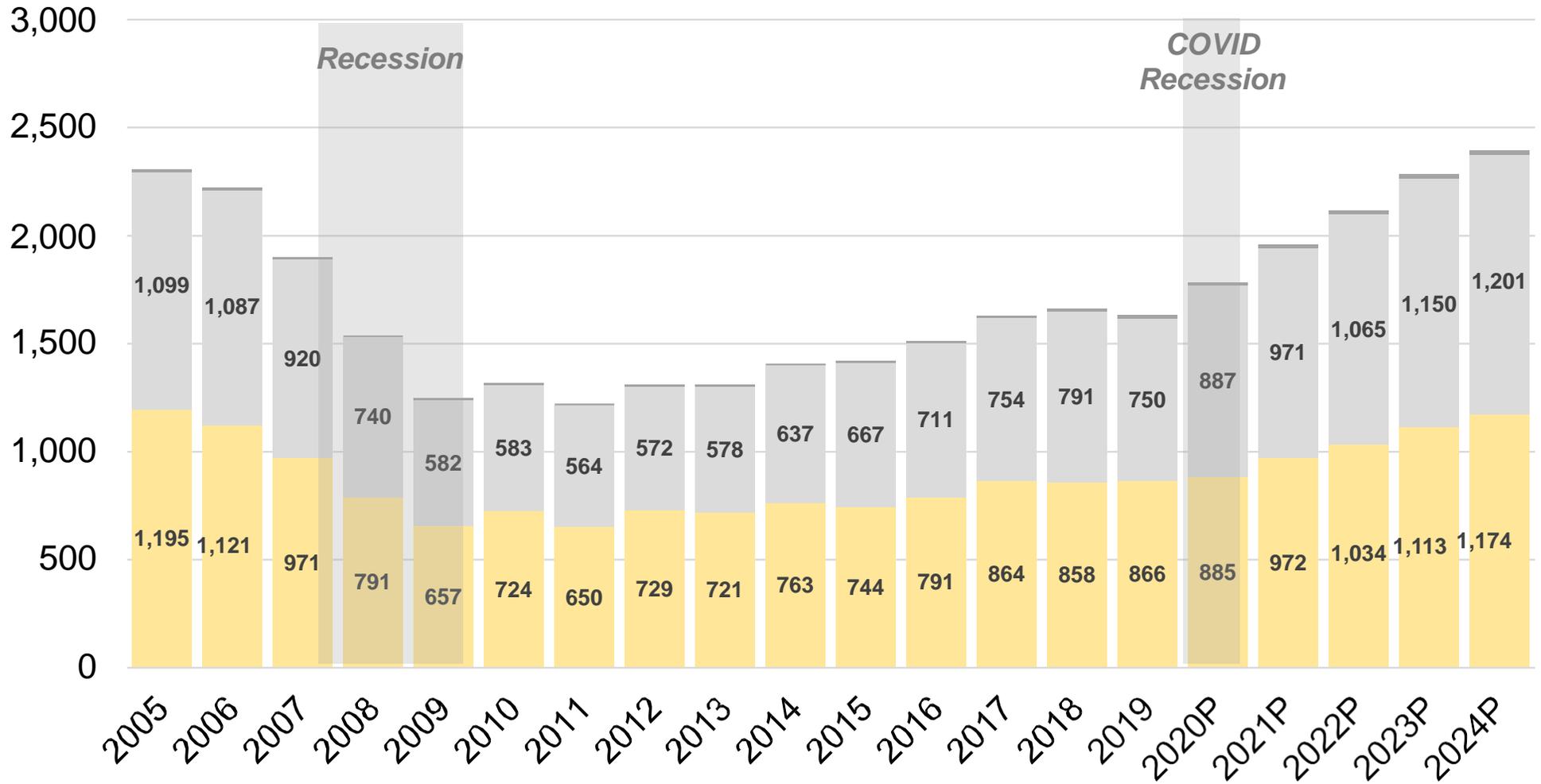


INDUSTRY FORECAST

RESIDENTIAL ALUMINUM TO **GROW 34% TO 2.4 BILLION LB BY 2024**, DESPITE COVID- DRIVEN SLOWDOWN IN ECONOMY

Residential Aluminum Usage (MM lb)

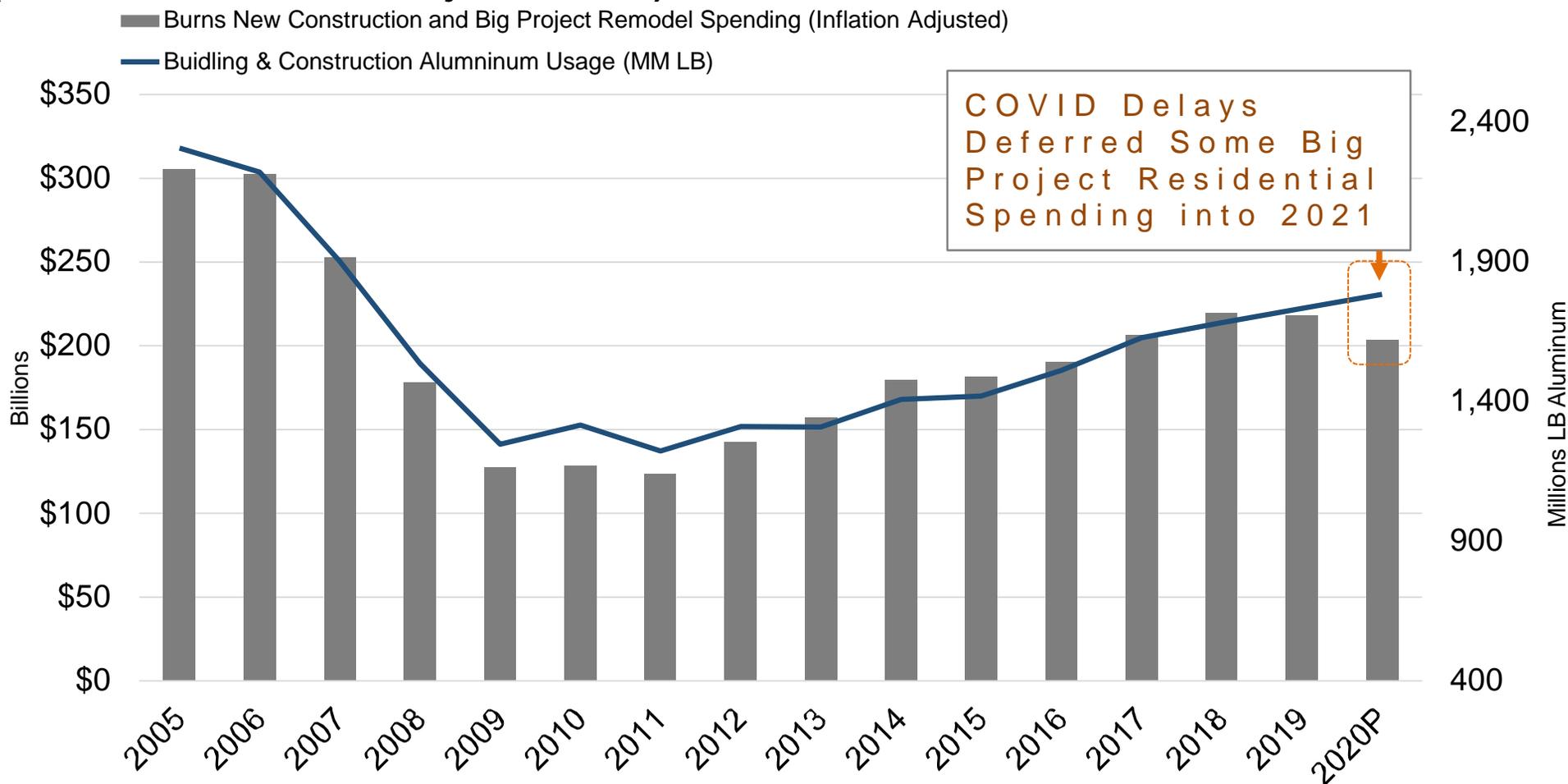
■ Sheet and Plate
 ■ Extruded
 ■ Other



Source: John Burns Real Estate Consulting LLC (Pub: Apr-21)

JBREC NEW CONSTRUCTION AND BIG PROJECT REMODEL DATA A HISTORICALLY ACCURATE PREDICTOR OF RESIDENTIAL ALUMINUM BUILDING & CONSTRUCTION DEMAND

Residential Aluminum Usage and Real Residential Spending (New Construction and Major Remodel)



Source: John Burns Real Estate Consulting LLC (Pub: Apr-21)



ALUMINUM usage in home building

JOHN BURNS
REAL ESTATE CONSULTING

\$100K of residential spending drives...

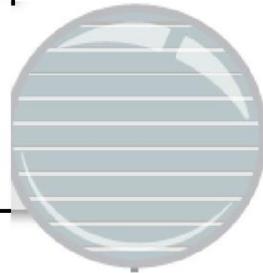


181 aluminum in awnings



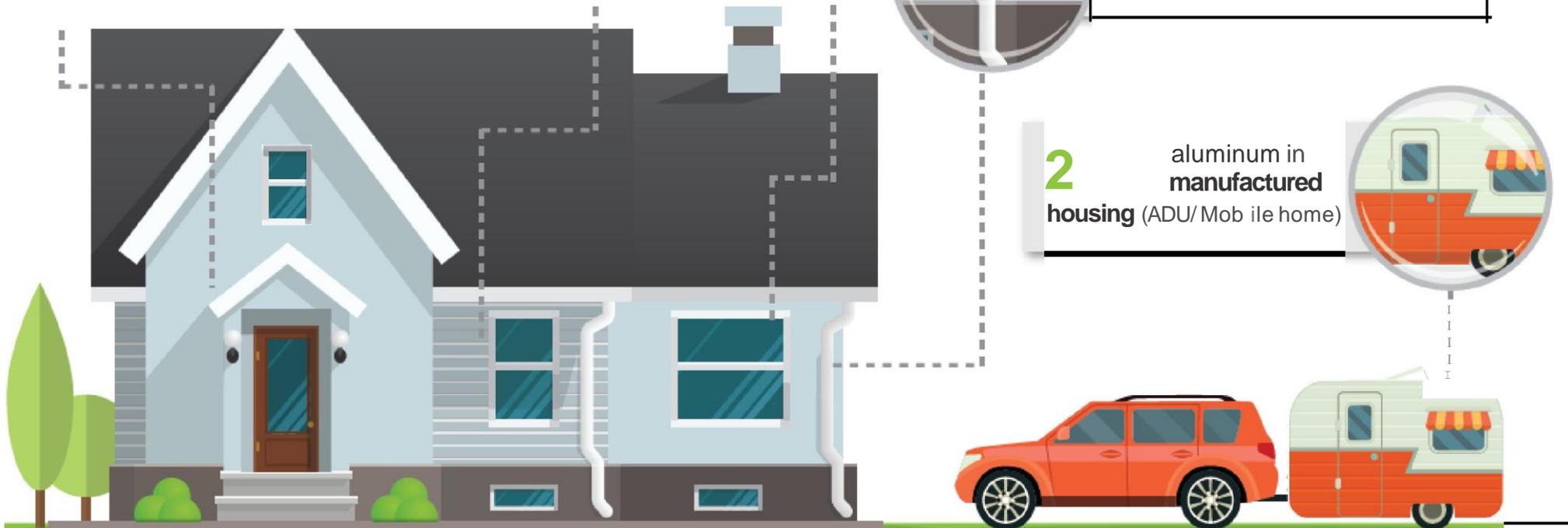
400 aluminum in windows & doors

2071 aluminum in siding



1451 aluminum in gutters & spouts

2 aluminum in manufactured housing (ADU/ Mobile home)



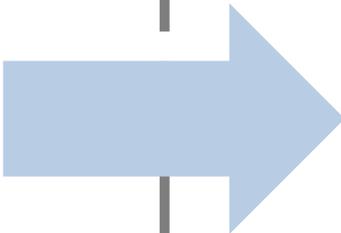
\$100K OF RESIDENTIAL CONSTRUCTION SPENDING DRIVES 760 LB OF ALUMINUM USAGE (SHEET, PLATE, AND EXTRUDED)

Each \$100k of Spending

Drives Aluminum Usage:



\$100k
Residential
Construction
Spending*



400 LB
Sheet and Plate
+
360 LB
Extruded

Source: John Burns Real Estate Consulting LLC (Pub: Apr-21)

* Includes Major Remodels and New Construction Spending, Excluding Land Cost, Adjusted for Inflation

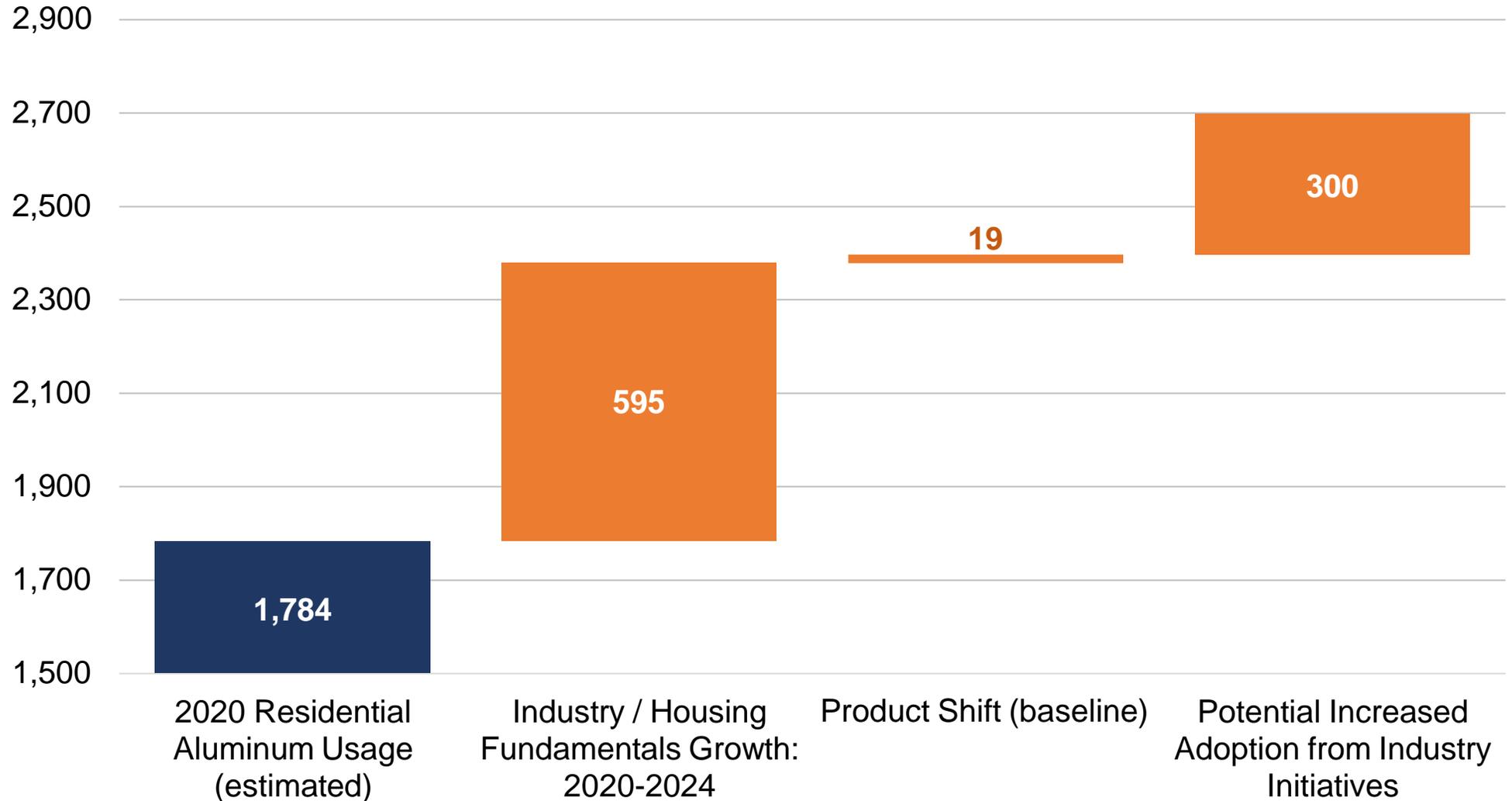
BASE SCENARIO FORECAST DETAIL: 8% COMPOUND GROWTH 2020-24, SHEET AND PLATE TO GROW 7% ANNUALLY, EXTRUDED TO GROW 8%

	History							Forecast				CAGR 2015-20	CAGR 2020-24
	2014	2015	2016	2017	2018	2019	2020E	2021P	2022P	2023P	2024P		
Total	1408	1420	1512	1629	1661	1633	1784	1958	2117	2285	2397	4.7%	7.7%
Sheet and Plate	763	744	791	864	858	866	885	972	1034	1113	1174	3.5%	7.3%
W&D	81	78	76	80	82	82	93	102	112	121	127		
Awnings	17	13	13	14	9	9	10	9	9	8	9		
Siding	395	385	414	448	444	447	443	530	602	655	686		
Manu Housing	17	15	15	17	17	17	16	16	16	16	16		
Gutters	253	253	273	305	306	311	322	316	295	313	336		
Extruded	637	667	711	754	791	750	887	971	1065	1150	1201	5.9%	7.9%
W&D	593	621	659	697	731	694	831	912	1002	1083	1132		
Awnings	25	27	27	28	29	28	26	29	34	37	40		
Siding	1	1	1	2	2	1	2	2	3	3	3		
Manu Housing	18	18	24	27	29	27	28	27	27	27	27		
Gutters	0	0	0	0	0	0	0	0	0	0	0		
Other	8	9	10	11	12	17	12	16	19	22	22	6.6%	16.0%
W&D	6	6	7	8	9	8	11	12	14	15	15		
Awnings	1	2	2	2	2	2	0	2	4	6	6		
Siding	0	0	0	0	0	0	0	0	0	0	0		
Manu Housing	1	1	1	1	1	1	1	1	1	1	1		
Gutters	0	0	0	0	0	6	0	0	0	0	0		

Source: John Burns Real Estate Consulting LLC (Pub: Apr-21)

ALUMINUM BUILDING AND CONSTRUCTION USAGE TO GROW 34-51% BY 2024 ON VOLUME, MIX, AND SHIFTS

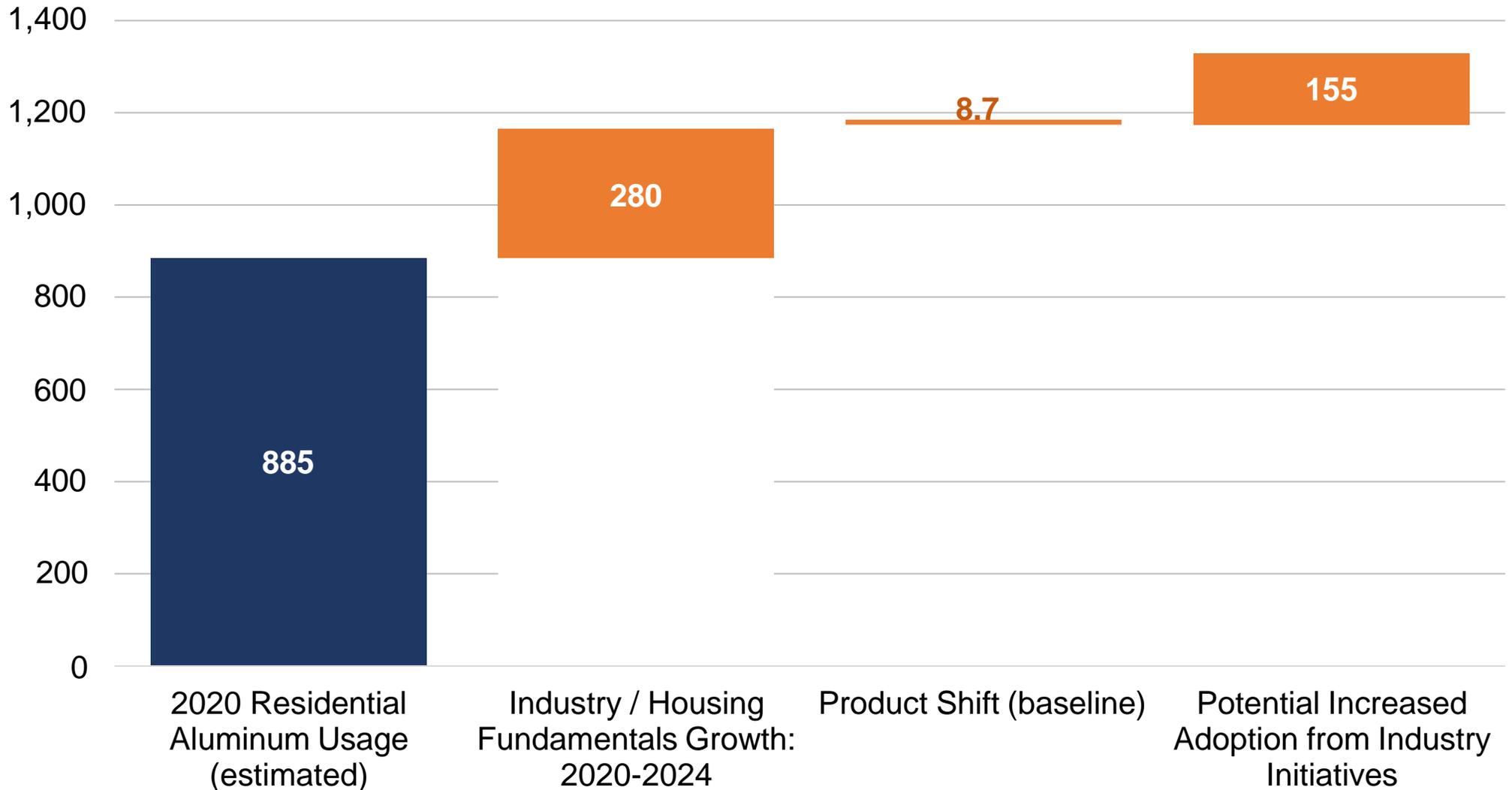
Source of Residential Aluminum Growth 2020-24 (MM of Lbs)



Source: John Burns Real Estate Consulting LLC (Pub: Apr-21)

ALUMINUM SHEET AND PLATE USAGE TO GROW 33-50% BY 2024 ON VOLUME, MIX, AND SHIFTS

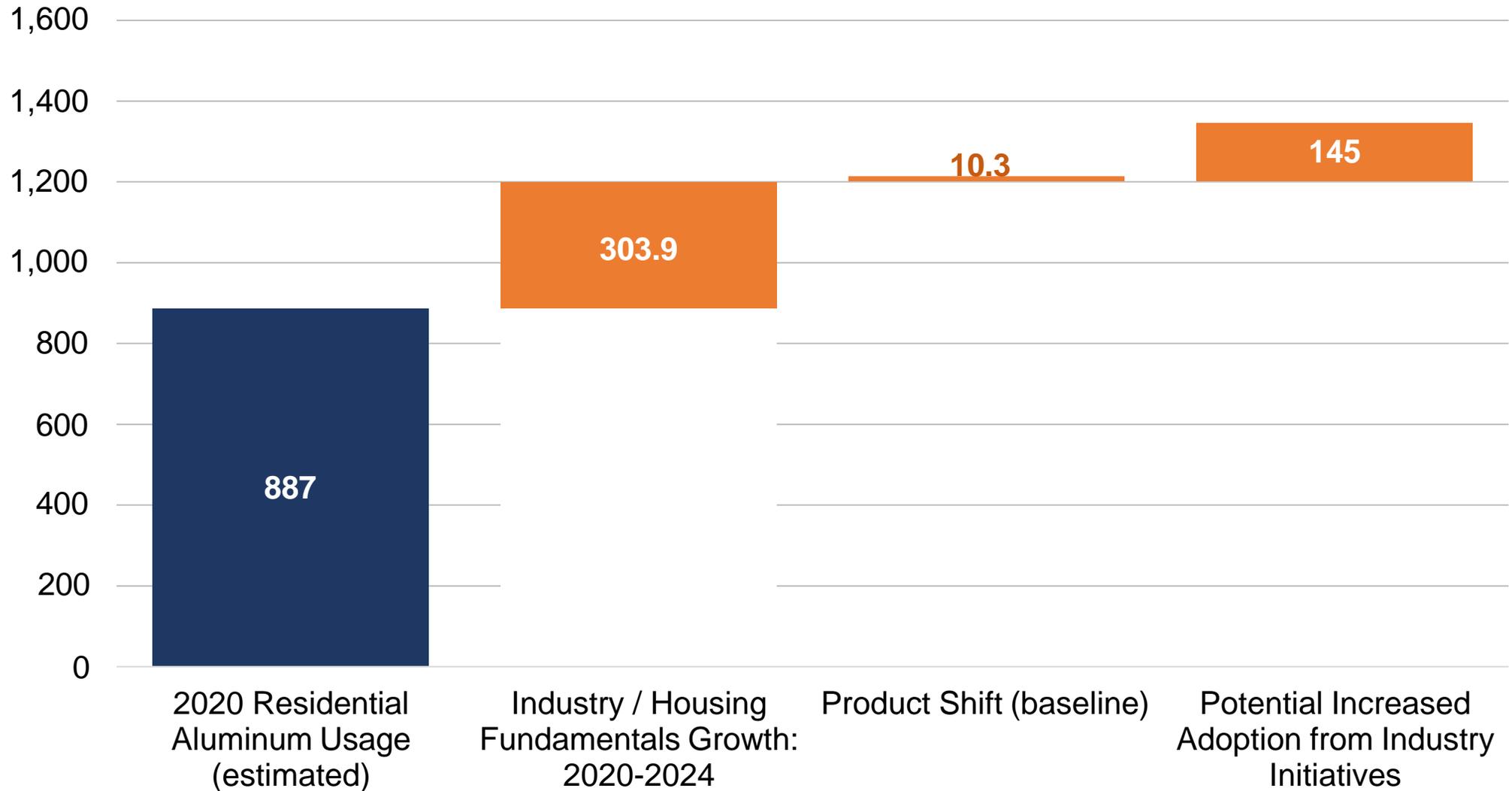
Sheet and Plate Residential Aluminum Growth 2020-24 (MM of Lbs)



Source: John Burns Real Estate Consulting LLC (Pub: Apr-21)

ALUMINUM EXTRUSION USAGE TO GROW 35-52% BY 2024 ON VOLUME, MIX, AND SHIFTS

Extruded Residential Aluminum Growth 2020-24 (MM of Lbs)



Source: John Burns Real Estate Consulting LLC (Pub: Apr-21)

WHAT YOU NEED TO BELIEVE TO ACHIEVE EXPECTED INDUSTRY GROWTH BY 2024



**NEW CONSTRUCTION
HOUSING STARTS
~1.9MM BY 2024**



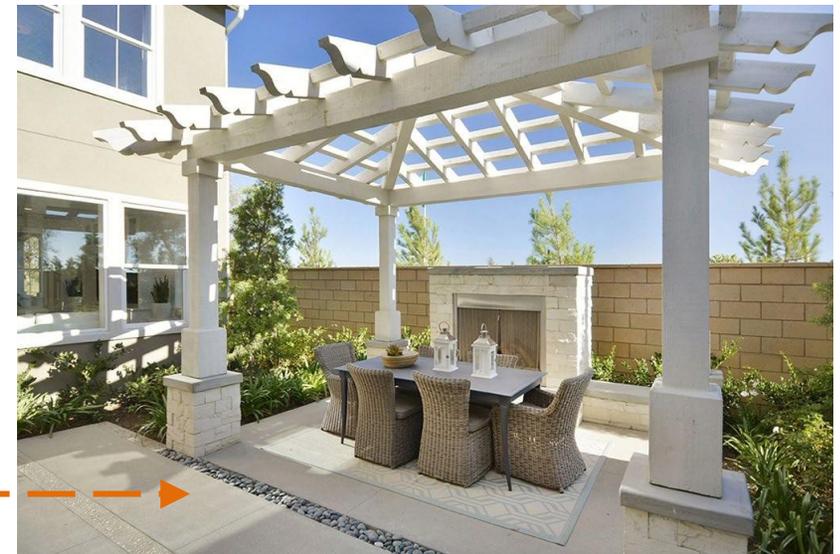
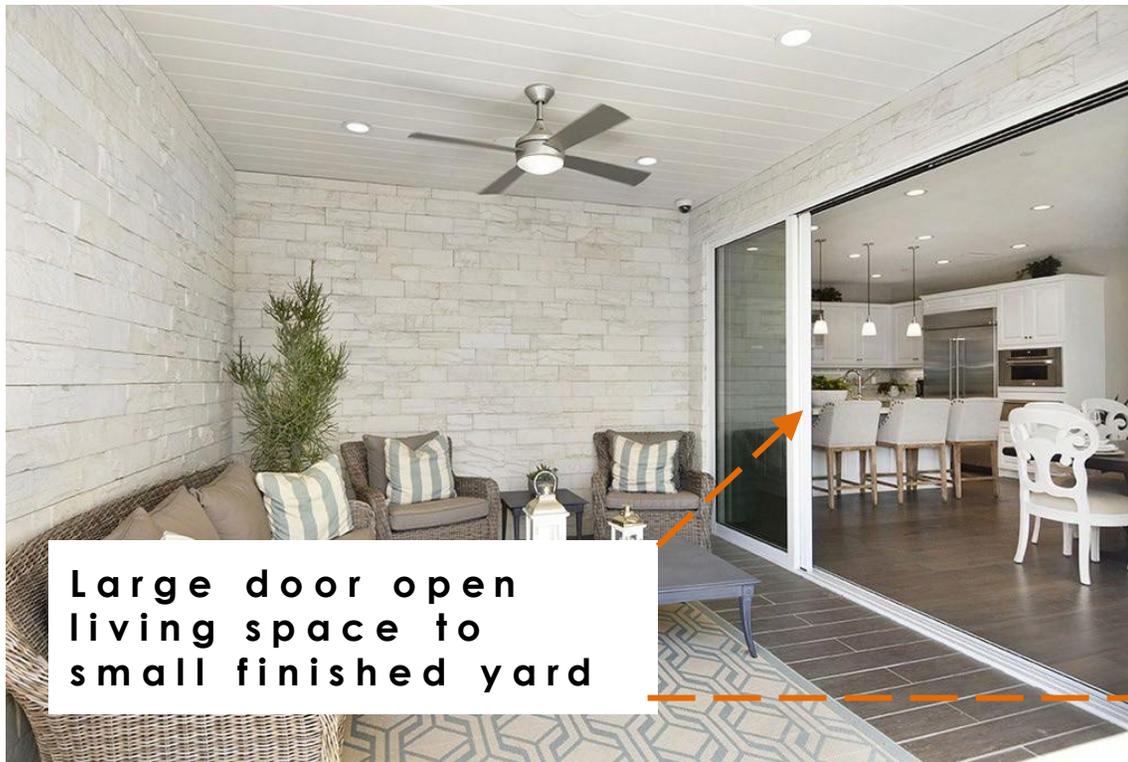
**RESIDENTIAL BIG PROJECT
REMODELS (\$5000+) GROW
NET ~8% PER YEAR AS
BACKLOG OF OUTDATED
PROJECTS + HOME PRICE
APPRECIATION AND WAVE
OF INSTITUTIONAL SINGLE-
FAMILY RENTAL INVESTORS
SUPPORT REMODELING DEMAND**

Source: John Burns Real Estate Consulting LLC (Pub: April-21)

SHIFT TO HIGH DENSITY CONSTRUCTION ON SMALL LOTS DRIVING ADOPTION OF PREMIUM ALUMINUM PANELS/DOORS TO 'OPEN UP' YARD TO HOME

Case Study: OUTDOOR INTEGRATION INTO LIVING SPACE VIA ALUMINUM PANEL

Small lots driving integration of indoor/outdoor spaces, and increased aluminum door usage. High land prices driving smaller lots for (5 homes per acre, at \$1.1MM+) homes at all pricepoints are opened via aluminum sliding door to small highly finished yard. Yard becomes part of the home, enabled by aluminum panel



Source: John Burns Real Estate Consulting LLC (Pub: Feb-20); Photo Source: DesignLens

CONTEMPORARY COMMERCIAL PROJECTS IN SURBAN AREAS STARTING TO FEATURE ALUMINUM CLADDING

Case Study: Commercial Office Redevelopment

Migration to more urban / **SURBAN** neighborhoods closer to the job center in many major, established cities across the US is leading many commercial property owners to redevelop dated buildings to compete with new, higher priced space. We have found many examples of aluminum siding being applied to existing facades that not only modernize the building, but offer the property owner lower maintenance and repair costs.



Source: John Burns Real Estate Consulting LLC (Pub: Feb-20); Photo Source: Dizal

OVERSIZED ALUMINUM SLIDING DOORS (SOME WITH SCREENS) A KEY FEATURE OF HIGH DENSITY

Case Study: Oversized Sliding Doors

As consumers increasingly desire indoor / outdoor living spaces, we are seeing significant growth in demand for oversized patio doors that create a more seamless transition between indoor and outdoor spaces, especially in the Western U.S. In recent, proprietary consumer research, JBREC found among consumers in California, Nevada, Texas, Colorado, and Arizona, that the **number one space** homeowners plan to remodel **was outdoor living area** (56% of all consumers), followed by the kitchen and master bath. Further, among types of home improvements, consumers perceived creating an indoor / outdoor living area by **removing a wall and adding an oversized sliding door added more value to their home** than a kitchen or master bath remodel would (if spending the same amount on all projects).



Source: John Burns Real Estate Consulting LLC (Pub: Feb-20); Photo Source: Houzz, HGTV

ALUMINUM & ALUMINUM-CLAD WINDOWS

Case Study: Ultra Modern Design

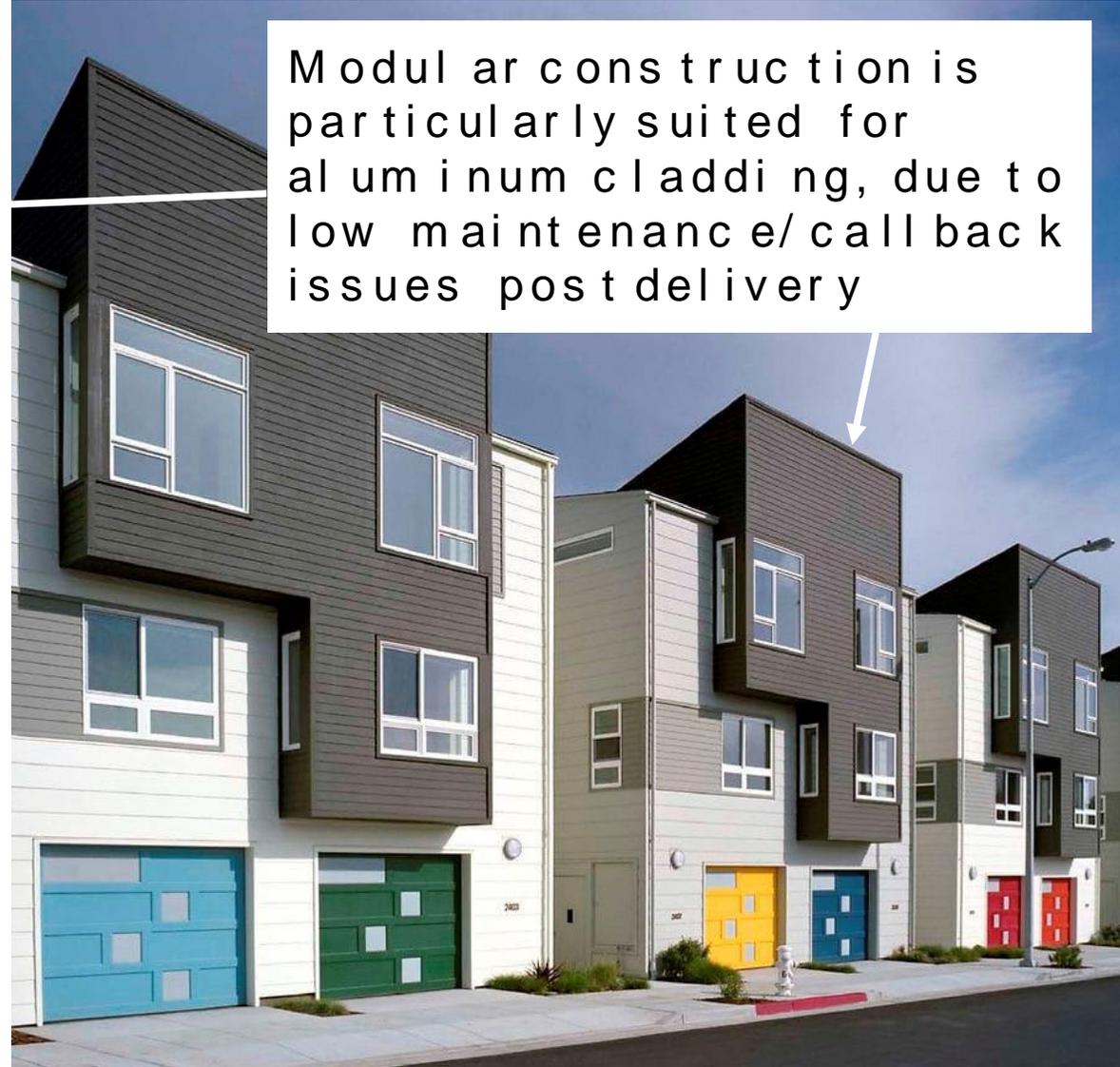
Proprietary JBREC home design research shows an uptick in demand for ultra modern, sleekly designed products in custom homes. Plumbing manufacturers are 3D-printing razor thin faucets, and *window and door manufacturers are increasingly offering thin frame, full-aluminum solutions to meet this design need.*



Source: John Burns Real Estate Consulting LLC (Pub: Feb-20);

MODULAR CONSTRUCTION FAVORABLE FOR ALUMINUM

CLADDING

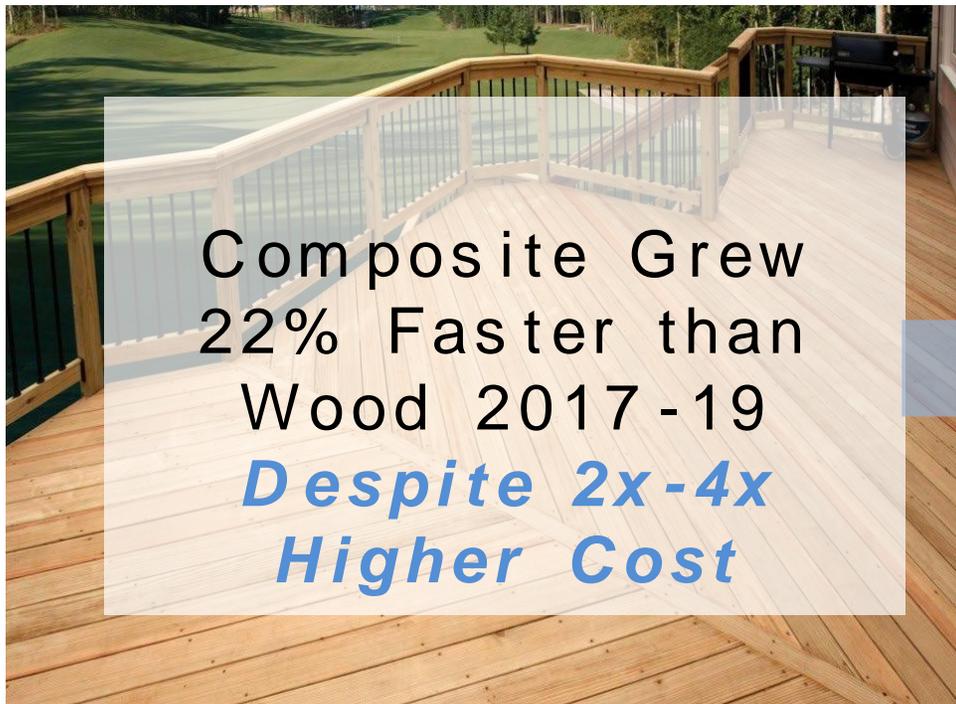


Modular construction is particularly suited for aluminum cladding, due to low maintenance/callback issues post delivery

Source: John Burns Real Estate Consulting LLC (Pub: Feb-20);

FASTEST GROWTH/PROFITABILITY PRODUCTS BENEFITING FROM CONVERSION TO LOW MAINTENANCE PREMIUM MATERIALS – OPPORTUNITY FOR PREMIUM ALUMINUM CLADDING

Low mobility (consumers staying in homes longer) driving consumer shift from low cost wood decking to premium composite decking



Source: US Census AHS, HIRL, John Burns Real Estate Consulting LLC (Pub: Feb-20);

RUSTIC, MODERN RESIDENTIAL EXTERIORS

Case Study: Rustic Moderns

Two of our most pinned photos on our Design Lens platform are these new home exteriors. One contemporary, one more traditional but both featuring aluminum-clad windows and either metal roofing or metal accents. Home builders are increasingly incorporating mixed materials on exteriors to add contrast and interest.



Source: John Burns Real Estate Consulting LLC (Pub: Feb-20); Photo source: Design Lens by John Burns Real Estate Consulting

METAL ROOFS ARE PARTICULARLY ATTRACTIVE TO CONSUMERS WHO DESIRE ENERGY SAVINGS

2005

7%

New Roofs are Metal



2019

15%

New Roofs are Metal



2025

>17%

New Roofs are Metal



Potential metal roofs usage to reach **23-25%** by 2025 if installed cost drops 15-20% OR architects continue shift to modern design

Source: ARMA, HIRL, John Burns Real Estate Consulting LLC (Pub: Feb-20)



LIMITING CONDITIONS

LIMITING CONDITIONS

The conclusions and recommendations presented in this report are based on our analysis of the information available to us from our research as of the date of this report. We assume that the information is correct and reliable and that we have been informed about any issues that would affect project marketability or success potential.

Our conclusions and recommendations are based on current and expected performance of the national, and/or local economy and real estate market. Given that economic conditions can change and real estate markets are cyclical, it is critical to monitor the economy and real estate market continuously, and to revisit key project assumptions periodically to ensure that they are still justified.

The future is difficult to predict, particularly given that the economy and housing markets can be cyclical, as well as subject to changing consumer and market psychology. There will usually be differences between projected and actual results because events and circumstances frequently do not occur as expected, and the differences may be material. We do not express any form of assurance on the achievability of any pricing or absorption estimates or reasonableness of the underlying assumptions.

In general, for projects out in the future, we are assuming “normal” real estate market conditions, and not a condition of either prolonged “boom” or “bust” market conditions. We do assume that economic, employment, and household growth will occur more or less in accordance with current expectations. We are not taking into account major shifts in the level of consumer confidence; in the ability of developers to secure needed project entitlements; in the cost of development or construction; in tax laws that favor or disfavor real estate markets; or in the availability and/or cost of capital and mortgage financing for real estate developers, owners and buyers. Should there be such major shifts affecting real estate markets, this analysis should be updated, with the conclusions and recommendations summarized herein reviewed and reevaluated under a potential range of build-out scenarios reflecting changed market conditions.

We have no responsibility to update our report analysis for events and circumstances occurring after the date of our report. This analysis represents just one resource that should be considered when assessing a market opportunity.

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