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Electric Vehicle (EV) charging and Solar-Ready Building Code

Amber Rodgers
Assistant Building Official
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Background

- On November 19, 2024, Council Member McGee requested a two-minute pitch to update the building codes for new single-family homes to be built EV-ready and Solar-ready.
- The ISR was published in the Friday Report on February 7, 2025.
- HABSCO was given a presentation on June 12, 2025.

Electric Vehicle (EV) Current Condition

- All new residential construction in the City is currently Type 1 *EV ready*, as the building codes require a 120v receptacle at each vehicle bay of attached and detached garages.

What are the different EV Charging Rates



Level/Type 3 = Fast Charging/Retail

Level/Type 2= Workplace

Level/Type 1= In home

EV Summary

- To construct a home as Type 2 EV ready there would be an approximate cost impact of about \$800-1500, initially paid for by the builder and passed along to the homeowner in the cost of the home.
 - If adopted, the *EV-Ready* homes would be required to be fitted with enough space in the electric panel to accommodate the 40-amp breaker needed for Type 2 EV charger (240v).
- The average cost for an installed Type 2 EV charger is \$800-\$2,500 based on the equipment.
- In the last 6 years, the city has issued 58 residential EV charger permits for Type 2 chargers. There are over 65,000 homes in the city which indicates less than .09% of homes currently have a Type 2 charger.
- As of June 10, 2025, the North Central Texas Council of Governments reported 1,394 registered EV vehicles in the City of Denton out of 108,703 total registered vehicles (1.28% EV adoption rate). This also indicates that approximately 4% of electric vehicle owners have Type 2 chargers installed at their home.

EV Considerations

- Minimize impacts to housing affordability, avoid new mandates for Type 2 EV charging.
 - The City of Denton does not have an active incentive program for EV charging but does offer an incentive for the purchase or lease of an electric vehicle.
There are IRS tax credits, and State level incentives. (energy.gov; comptroller.texas.gov/programs/seco/funding/)
- Staff time and costs to develop and implement additional reviews and inspections during the construction of each home.
 - Increase by one hour of additional plan review and inspections to each home at 30 minutes each, estimated at 75 new permits per month, staff time estimated cost at \$100/hour. Approximate cost to city would be about \$7,500/month, which would not including training, SOP updates, or software updates.
- Currently aligned with Climate Action Plan.

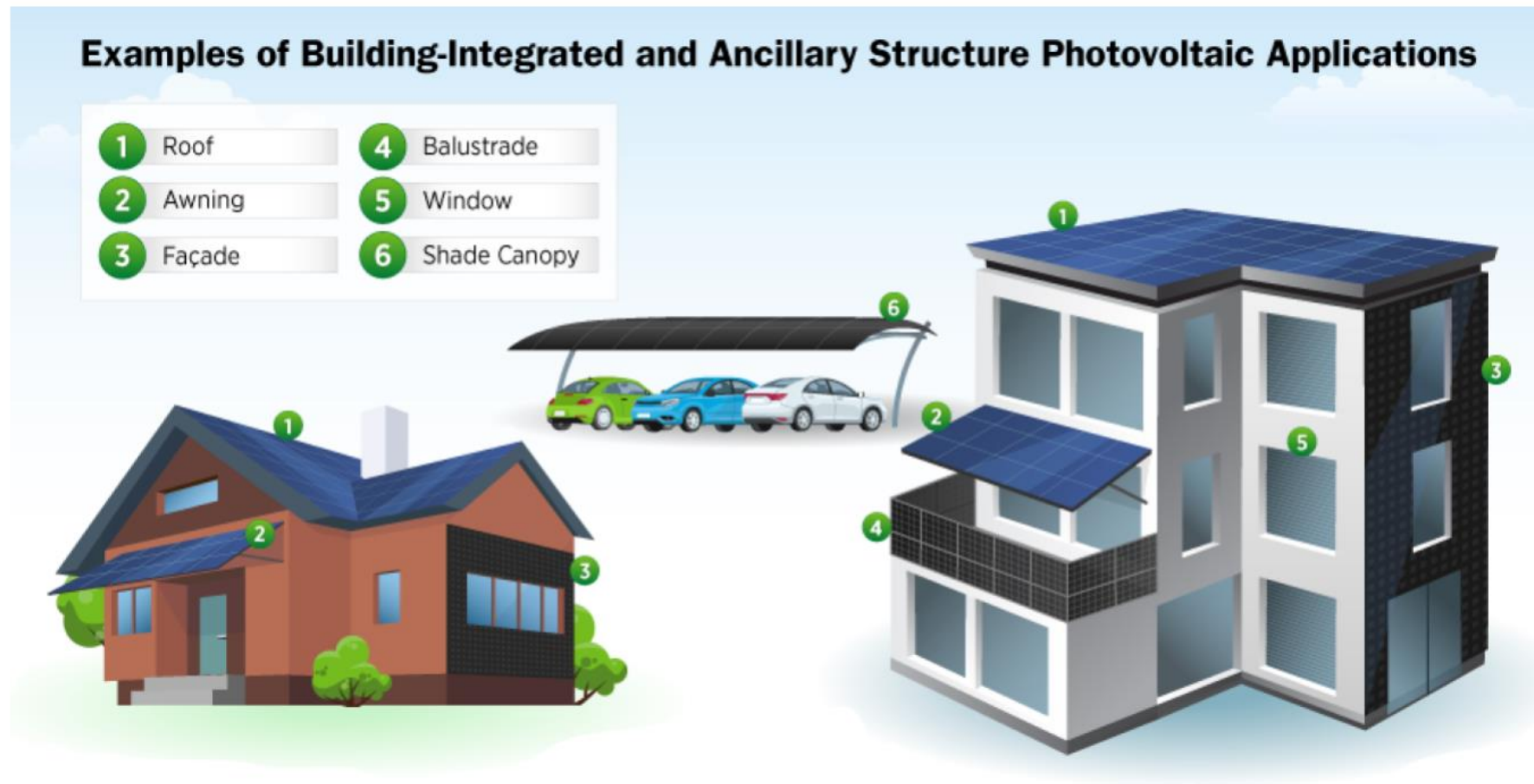
EV Conclusion

- The building code currently mandates receptacles in each vehicle bay which accommodate Type 1 EV chargers.
- Health and Building Standards Commission (HABSCO) was not in support of the mandate for EV capable (or Type 2) in new residential construction. The board requests consideration to incentivize installations rather than adopt a code amendment to mandate the requirement.

Solar Current Condition

- Current building codes do not require modifications or accommodations for future solar installs. For new solar installs, there are few alterations, typically only involving upgrades to the existing electrical system. None of the systems installed to date have required structural changes to the building.

Different Solar PV Applications



Solar Summary

- To construct a home as solar-ready there would be an approximate cost impact of about \$3,000, initially paid for by the builder and passed along to the homeowner in the cost of the home.
 - If adopted the plans submitted for permit must show the solar-ready zone, indicate the roof loads and calculations, the roof shall be oriented between 110 degrees and 270 degrees of true north OR have low sloped roofs (pitch of less than 2:12), shall reserve space in the electrical panel, and provide a permanent certificate indicating the solar-ready zone.
- The average cost for an installed solar system is around \$18,000 according to the National Renewable Energy Laboratory (NREL).
 - In 2024 the city issued 93 permits for residential solar panels, to date the city has issued 31 residential solar permits.
 - Solar panel installations currently account for less than 1% of the number of existing homes per year.

Solar Considerations

- To minimize impacts to housing affordability, avoid new mandates for solar readiness as current construction standards already support these installations and require only minor electrical updates for solar installations.
 - The City of Denton does not have an active incentive program for Solar installation currently. There are IRS tax credits, and State level incentives for both. (energy.gov; comptroller.texas.gov/programs/seco/funding/)
- Staff time and costs to develop and implement additional reviews and inspections during the construction of each home.
 - Increase by one hour of additional plan review and inspections to each home at 30 minutes each, estimated at 75 new permits per month, staff time estimated cost at \$100/hour. Approximate cost to city would be about \$7,500/month, which would not including training, SOP updates, or software updates.
- Currently aligned with Climate Action Plan.

Solar Conclusion

- Based on the City's current data and no permit requests for solar systems installed at the time of new construction, it appears that the need for solar-ready for every new home is not substantiated at this time.
 - Not all homes are ideally oriented or designed to install solar. Many lots will not accommodate the requirements, including trees and other appurtenances.
 - Additionally, there may be unknown costs such as replatting, required increase in lot size, and more if mandated.
- Health and Building Standards Commission (HABSCO) did not support imposing mandates for solar ready in new home construction. The board requests consideration to incentivize installations rather than adopt a code amendment to mandate the requirement.

Next Steps

- Continue with currently adopted 2021 codes which already provide conditions for Type 1 EV-ready charging and minimal updates for solar installation; OR
- Amend or update the adopted codes.
 - Timeline to implement?
 - Amendment or updates to the code will come back to Council for approval.
 - Reconsider after higher rate of EV vehicle registration/solar installation requests.