

Design Development of Honda e - Vehicle Conveying Concepts of Modern Technology and Affinity

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ABSTRACT

The Honda e was developed to be the best compact-size commuter car for in-town mobility, and is Honda's first mass-production electric vehicle. Looking 10 years into the future, the aim was to create a car that would be like a partner that fits closely into the user's everyday life in a world where advanced modern technology seamlessly connects with people.

In giving the design its material form, the expression "Affinity & Modern" served as keywords. The aim for the package was a comprehensive effort to realize the best size for in-town mobility. For the exterior, the design plumbed the depths of simplicity to achieve a stable automotive stance together with distinctive body colors that highlight the styling. The interior expressed the comfort of a cozy living room with a feeling of high quality.

1. Introduction

The Honda e is an electric vehicle (EV) that was developed with the goal of announcing it and putting it on sale in 2020, the year in which European corporate average fuel economy (CAFE) standards were to be strengthened. From the very start of development, this was not envisioned as a means of long-distance mobility, but rather as an in-

town commuter car. Anticipating the impending connected, autonomous, shared, and electric (CASE) era, its base concept was formulated as "Seamless life creator" (Fig. 1). In other words, when the world becomes a place where there is no need to separate people, their residences, and their in-town mobility, then the idea is that even an EV of compact size can become a creator of life that is boundlessly expansive.

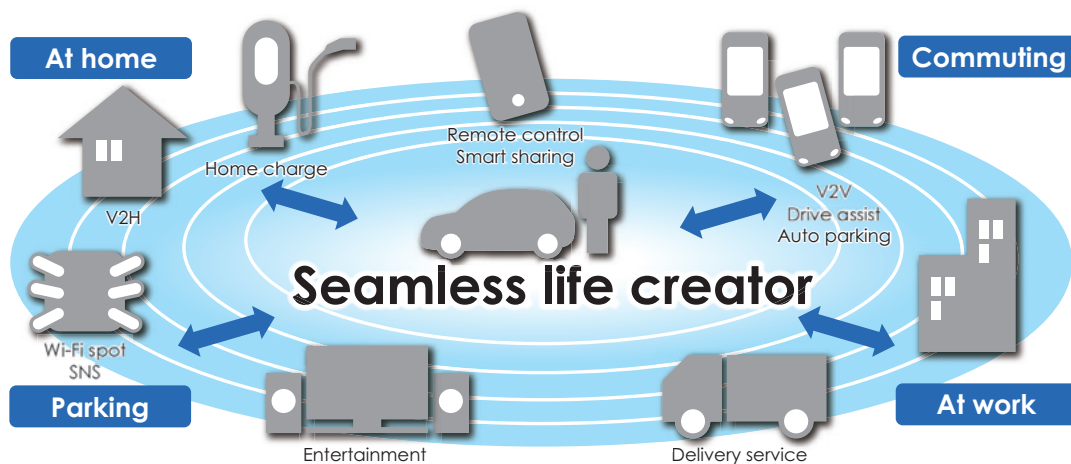


Fig. 1 Base concept

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The further thought this leads to, however, is that in a world with EVs, there is something more than just the visible difference from gasoline-powered vehicles. There should be something more important that is involved.

In order to find that something, the authors set out to pursue research in Northern European countries that are advanced in EVs and that are said to enjoy a high degree of happiness. What they sensed about these countries even before the feeling that they were advanced in EV use was that they felt like places where people can experience time flowing along at a relaxed pace in their prosperous lives and in the midst of nature. They realized, therefore, that the rationale they were looking for was not that this was a new car, or that it was an EV. What became the starting point for design development was the desire to create something that customers would choose because it was closer to the lives they were living. From that realization, the design direction was formulated as “Affinity & Modern” (Fig. 2), and the team set out to develop a car that would put advanced modern technology close to people so they would feel it as a partner in their lives.

2. Package Design Aimed to Make the In-town Best

One thing that was sensed during research in Northern Europe was the attractiveness of cities where nature and modern design are fused together in old cityscapes. In terms of the traffic environment, however, in-town locations faced characteristic issues. Certain things were seen to be important: Given the crowded state of parking on the streets, a compact size; given the consecutive roundabouts, a field of vision that allows good vehicle sense and makes it easier to handle corners; and given the chronic congestion, an interior that provides comfort. Circumstances like these led to the creation of a package that was the best in-town car in terms of being familiar to people and to the city streets. The conclusion arrived at was that even for a new generation EV, what would provide easy in-town handling in Europe was the universal two-box compact size.

As shown in Fig. 3, that body size was made to provide an extra margin for in-town mobility and parking by giving it a total length of 3895 mm, which is 100 mm shorter

Affinity & Modern

Rich life that begins
with people's feelings



Styling to convey advanced technology
and feelings of affection

Active choice



Fig. 2 Design direction

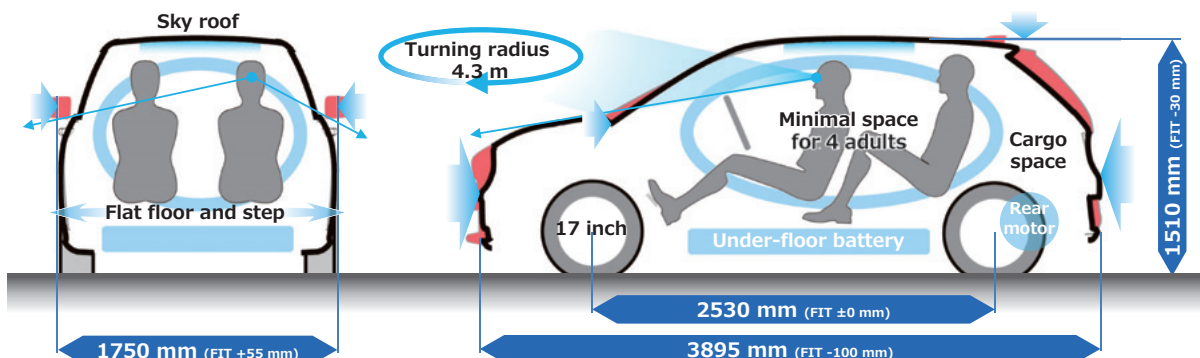


Fig. 3 Package layout (comparison with FIT)

than the FIT, a total width of 1750 mm even including the mirrors because of the camera monitor system (CMS), and a total height that was kept within 1510 mm (there being no roof antenna), which leaves ample room even for ordinary mechanical vertical parking. In addition, the location of the bottom end of the front pillar was moved closer to the driver side, successfully broadening the horizontal angle of visibility to provide easier maneuvering at corners. Steps were also taken to assure good vehicle sense by making a portion of the hood visible from the driver's seat, CMS providing visibility at corners that cannot be obstructed by the door mirrors.

For the interior, the under-floor battery location allows the generous driving posture of a sedan while taking the height of the floor above the ground into consideration, thereby providing a minimal space that can accommodate four adults. A sky roof with a large opening 790 mm wide and 433 mm long comes as standard equipment to effectively produce a comfortable interior even within the compact size.

The floor was also made side-to-side walk-through so that a person who is inside the car alone, for instance, while waiting for it to charge, can easily move over to the passenger seat.

There was concern about the impact that rear motor placement would have on the cargo space. However, making the power control unit (PCU) thinner and other such measures achieved a lower floor (720 mm height above the ground). This gave the cargo space a capacity of 170 L or more, which is the volume of an ordinary supermarket shopping cart. The space is also shaped so that it can hold an ordinary reversible style type A stroller.

This dedicated platform and rear motor placement realize a package (Fig. 3) that is augmented with CMS and other driver assistance equipment of all kinds together with a minimum turning radius of 4.3 m. These and other such features suit this car to be the in-town best for size.

3. Simple Exterior Design Evokes Affectionate Feeling

In order to determine the direction for development, the question of what kind of EV will be truly needed in the times ahead was considered. The result was that although people tend to look for an environmental image or a sense

of being very advanced in an EV, the time is coming when EVs will have become commonplace. Bearing that in mind, it was decided to make a simple and readily understandable design that evokes an affectionate feeling, so that the car fits in easily as a familiar part of people's lives without feeling at all strange or uncomfortable.

3.1. Distinctive EV Proportions and Approachable Silhouette

Thanks to the benefits of rear-wheel drive, the front overhang could be shortened to 700 mm, something not readily achievable in a gasoline-powered front-drive (FF) vehicle of the same class. Since the battery is held under the floor, the wheelbase of 2530 mm is long in relation to the total length of 3895 mm. Compared to gasoline-powered vehicles of the same class, both vehicle weight and torque are greater, and the tires are also slightly larger as a result. For these reasons, within its compact total length the car successfully realizes the proportions of a short overhang, a long wheelbase, and large-diameter tires. In order to take full advantage of these highly favorable proportions while also expressing a friendly, approachable quality, the universal two-box silhouette was chosen (Fig. 4).

3.2. Styling to Make the Most of Simplicity

Styling faced the challenge of how to handle the growing complexity of functional components resulting from the presence of radar, sensors, cameras, and so on in a way that would highlight simplicity. Automobiles generally have an exterior appearance that includes numerous parts such as door mirrors, door handles, and so on that are functionally necessary, and further styling efforts are made in order to give them some individuality. The result in the finished product is often the addition of numerous parts, unintended cut lines, protrusions, and so on that did not exist at the sketch stage. In the design development of the Honda e, therefore, the door mirrors were replaced by cameras, the door handles, radar, and sensors were set flush to the surface, and other such measures were taken to make the car's original functionality – meaning the body, the cabin, the tires and wheels, and the lights – stand out as a presence. The aim here was an exterior appearance that is simple, friendly, and approachable even if it is complex and multi-functional.

For the cabin, sashless doors were adopted. Then, combining large pillar garnishes with a glass roof created



Fig. 4 Exterior sketch

the exterior appearance of a blacked-out glass canopy with few differences in surface level.

For the edge of the hood, a link-type hinge was adopted to make it possible to raise the hood wide open along the side. That edge was extended all the way to the door panel so that it would be linked visually with the shoulder line, making the hood edge blend into the overall design.

The front grille design of an EV generally has few constraints due to cooling performance requirements. What was done here with the camera and radar, therefore, which are crucial items of safety equipment for recent automobiles, was to design them to be blacked out so they could be inconspicuously positioned. Since the surface curvature and angle of the covers on cameras and radar are generally restricted by their function, the grille design is ordinarily given priority with the covers then positioned by adding another level or a separate component. For the grille of the Honda e, however, the surface was positively designed to suit the angle and curvature for the camera and radar, achieving a balance between their advanced

safety function and a flush surface. The same approach was followed in the rear design to provide a unified impression of simplicity (Fig. 5).

Steps were taken so that the line between the lower part of the doors and the side sills would be inconspicuous. Automobiles generally have the side sill farther to the outside of the lower edge of the door for protection from stone chipping. This part can reflect the light, however, so that the difference in level becomes conspicuous. For the Honda e, a protector was added to the lower edge of the door so that the upper edge of the side sill would be farther to the inside of the door. This suppresses the reflection of light and achieves a design that keeps that line inconspicuous (Fig. 6).

3.3. Headlights and Rear Combination Lights Provide Communication with People and Cars

As the eyes of a car, the lights play a very important part in forming the car's facial expression. For the Honda e, the light interior was made a perfectly circular shape

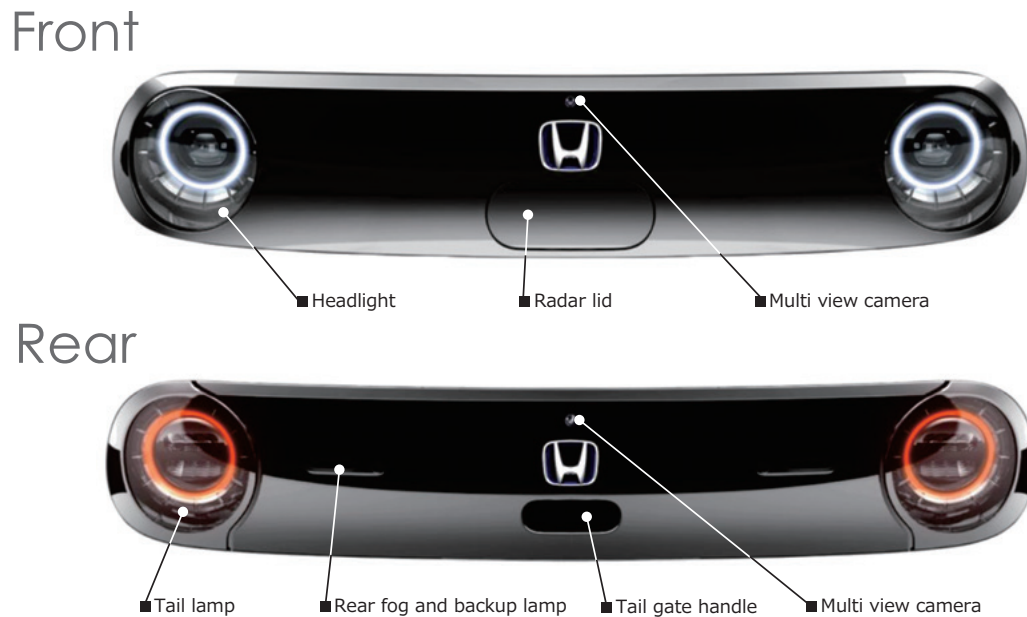


Fig. 5 Consolidation of functions

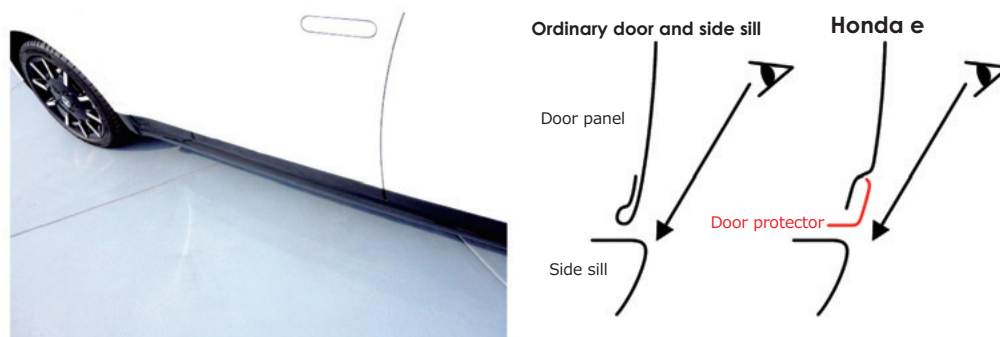


Fig. 6 Styling that highlights simplicity

that faces forward, and then the housing and outer lens were designed on that basis. The perfect circular shape was adopted to create an approachable expression and it was also considered an effective means for producing a greater impression of completion as a product embodying design simplicity. There are severe constraints on the outer shape of the headlights, however, and matching this motif with the overall form of the car also presented a challenge.

The aim for the exterior appearance of the lights was to produce abundant expressiveness and beautiful illumination when turned on. When they are turned off, however, the design makes them look totally black so their presence will not be sensed. Since an EV has no engine operating sound, the car was made so that the only way to tell whether the ignition is on or off from the outside is by the illumination from the lights.

Specifically, edge lights were adopted for the daytime running lights (DRL), the tail lamps, and the front and rear turn signals. These lights all have separate inside and outside edge lights, and they distribute their light using only

a clear lens without a reflector, which means that if their housing is black, then the light units can be made to appear black when they are turned off.

The only reflector used is in the rear stop lamps. This reflector's angle is adjusted so that it will not reflect the bright lights in the external world, even during the daytime. The design was also made so that the only thing reflected would be the LED board, which is colored black.

Adopting a round motif enables the same internal mechanism to be used on both left and right. This contributes also to a reduction in the number of parts (Fig. 7).

3.4. Charge Lid Produces a Fully Satisfying Charge Experience

Compared to the refueling of gasoline-powered vehicles of the same size, the Honda e will have a higher frequency of energy charging, meaning recharging. There was a desire to produce a special experience even during recharging by giving the charge lid a feeling of high quality as well as usability, and by the use of lights and movement. The design

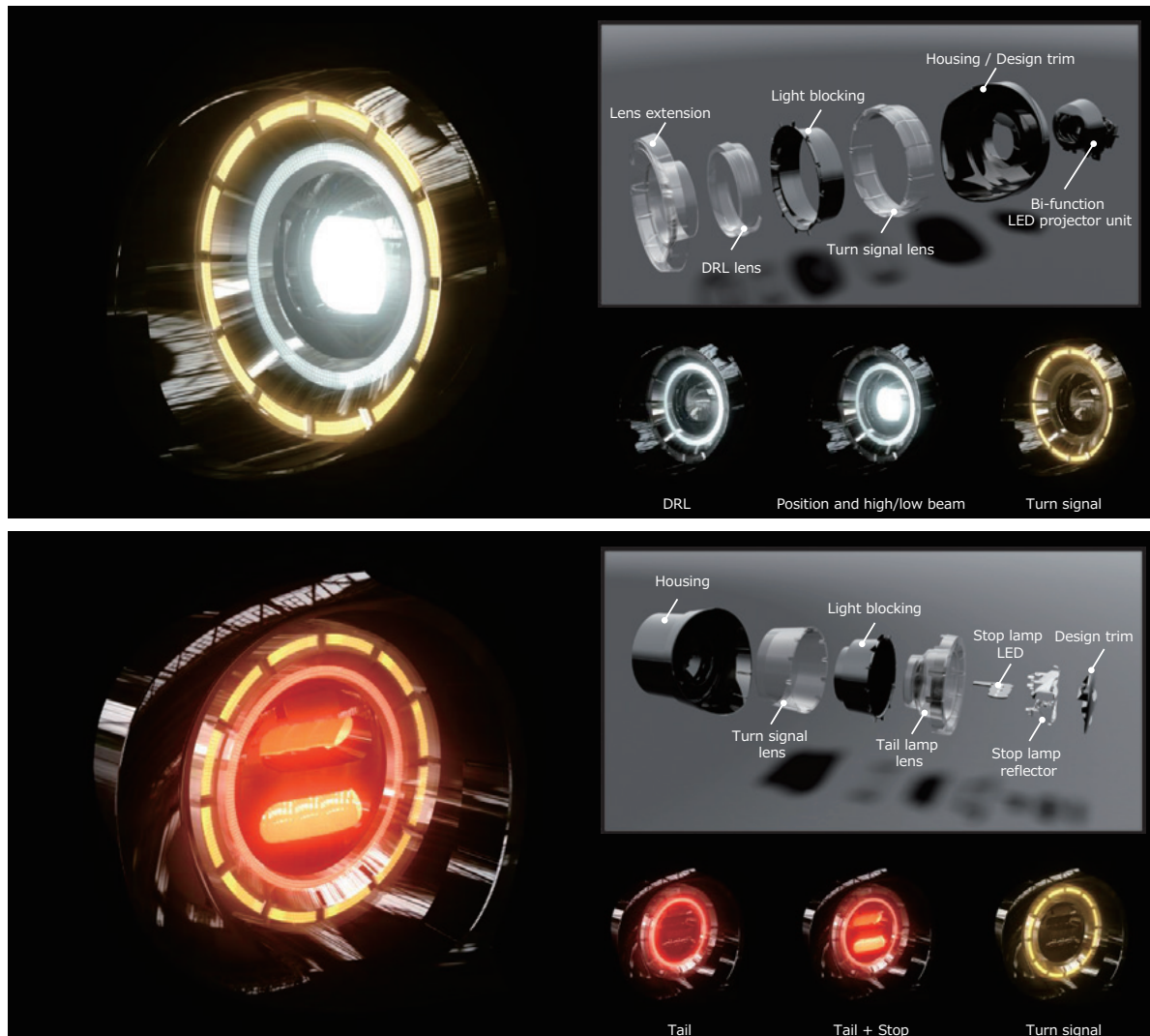


Fig. 7 Headlight and tail lamp

was carried out, therefore, with a conceptual approach that calls for special handling and treatment of those components and functions that will be special to the user.

The lid location is centered at the front of the hood. Glass was chosen for the lid material to provide a feeling of quality to the touch. The mechanism for opening it causes the lid to rotate and slide into the open portion. In order to make the movement smoother, the same opening and closing mechanism was adopted for the cabin interior console lid. The inside under the charge lid was carefully shaped for ease in making a connection even when holding a heavy charging gun. There is also an indicator above the charging inlet that lights up evenly with a blue light to show charged status. The system is further designed so that when the car key is brought close to the lid, a white light will be visible even when the lid is closed to also serve as a welcome lamp that makes it easy to find the charge lid even in dark conditions (Fig. 8).

As on conventional vehicles, the lid is an impact energy absorbing structure that is also compliant with pedestrian safety regulations. The glass lid is also coated with a film to help prevent shattering.

3.5. Side Camera Mirrors with People-friendly Design

This is the first time for Honda to adopt the CMS, and everything from the internal mechanisms to the locations were designed from the ground up. In addition to this effort, the Honda e design development was pursued with the conceptual approach described earlier of “people-friendly design” with simplicity that also makes for ease of use.

First of all, in order to maintain an expansive field of

vision, consideration was extended to shaping the visor around the CMS camera lens so that raindrops would not adhere to the lens (Fig. 9, right), allowing for clear visibility even on rainy days. Good visibility directly from the driver’s seat was also taken into consideration, and by contrast with ordinary door mirrors, the side camera mirrors are placed on the door skin at a height that will not interfere with the direct field of vision from the driver’s seat.

Next, aerodynamic performance was considered in light of its impact on cruising range, with every effort made to reduce the frontal projected area. Thus, the CMS camera, multi-view camera, and side turn signal are placed side by side in the longitudinal direction, and the housing was positioned to make its vertical dimension slimmer (Fig. 9, center). A simple model was also fabricated and subjected to wind tunnel testing in the search for a low-resistance shape. As a result, the coefficient of drag (Cd) value was successfully reduced by 10 or more relative to ordinary door mirrors.

Finally, steps were taken with regard to the “people-friendly design” that is a distinctive feature of this car. The housing was held within the total width of the car, and it was given a rounded shape without protrusions or sharp corners. This design was intended to give people a sense of security even if passing close by (Fig. 9, left).

3.6. Flush Outer Handles Contribute to Simple Exterior Appearance

Since people touch a door handle every time they get in the car, it is an exterior component that is a very close presence to them. For the Honda e, therefore, the simple,



Fig. 8 Charge lid



Fig. 9 Side camera mirror

clean design that is the conceptual approach to the car as a whole was augmented by comprehensive care in order to make the outer handles something that people would want to touch every day.

The front outer handles were given a simple, low-noise design. This was achieved by adopting a flush-type handle, without differences in level, that pops up automatically when the key is brought close to it. While in conventional cars the key cylinder is an exposed part of the exterior appearance, here it is concealed internally to give a cleaner impression. The lock sensor is located on the top surface of the outer handle. This makes it easy to press when using it, and conceals it when closed, which contributes to making the exterior appearance less noisy. In addition, the rear side of the top surface was cut away so that users can easily put their fingers in the handle from behind as well as from below. To make the location of the sensor easier to find even under dark conditions, an LED light was also built into the door so that a light source there would be able to illuminate the sensor (Fig. 10, left).

Like the front outer handles, the rear outer handles were designed for simplicity and less noise. The handle functions were consolidated within a black area in a method that does away with differences in level and lines demarcating it from the body. This was accomplished by fitting the rear outer handles inside the side window, making the body less noisy in appearance. In order to give it a cleaner look, a flush, manually operated flap-type handle without a surface concavity for inserting the hand was adopted. Although this made for a clean appearance, not knowing how to open the door presented an issue. An indentation was thus designed into the part that users need to press, making it intuitively obvious how to make the flap open (Fig. 10, right).

3.7. Functional Beauty and Originality Highlighted by 16 Inch and 17 Inch Wheels

First of all, the 16 inch wheels were designed with electricity consumption in mind. Ordinary gasoline-powered vehicles have the effect of engine braking, so that fewer wheel openings are needed for brake cooling. When an EV is fully charged, however, it cannot use regenerative braking, which corresponds to engine braking in a gasoline-powered vehicle. On continuous, long downhill roads or other such circumstances, EVs need more brake cooling than gasoline-powered vehicles, and wheel design also

demands a larger area of openings. These wheels have less space open around the brake disks, in particular, so it was necessary to arrange the 10 spokes efficiently to help assure both cooling performance and rigidity.

A distinctive feature of this design is that it has a large-diameter central cap that conceals the wheel nuts. This is effective in two ways: the first is that the aluminum around the wheel nuts can be carved away to contribute to weight reduction; and the second is that concealing the wheel nuts yields a simple exterior appearance. The result is that the need for cooling performance is satisfied while achieving lighter weight and high rigidity in a design with a simple exterior appearance.

Next, for the 17 inch wheels, the design sought a creative modern quality not found in previous wheels.

Distinctive elements in this design include the elongated oval motifs that are used repeatedly throughout the Honda e body as a whole. These are arrayed in the wheel like the dial markings on a clock and joined to the large-diameter disk in the center. This arrangement sets this design apart from the conventional spoke-centric wheel design, giving it a modern exterior appearance. The disk portion in the center has approximately the same diameter as the brake rotor, and it is intended to conceal the soiled brake disk from the outside view.

This creative design presented two very challenging issues.

The first was securing the rigidity of the joints between the spokes and the disk. The designers also made proposals regarding the shape of the inside surface as they proceeded with adjustment of the amount of spoke overlap on the disk. Analysis of the data was carried out repeatedly as the design was maintained while securing the rigidity of the joints.

The other issue was securing cooling performance. The issues involved with openings in EV wheels for cooling are as described earlier. The design here, however, does not succeed if the openings become too large. The usual way of addressing such an issue is by aerodynamic simulation of the side view alone, but here, measurement of the cooling area in the depth direction was included in the calculation. Computational fluid dynamics (CFD) was used to analyze the flow of air, and even what appeared to be a small area in the side view turned out to secure highly efficient cooling performance (Fig. 11).

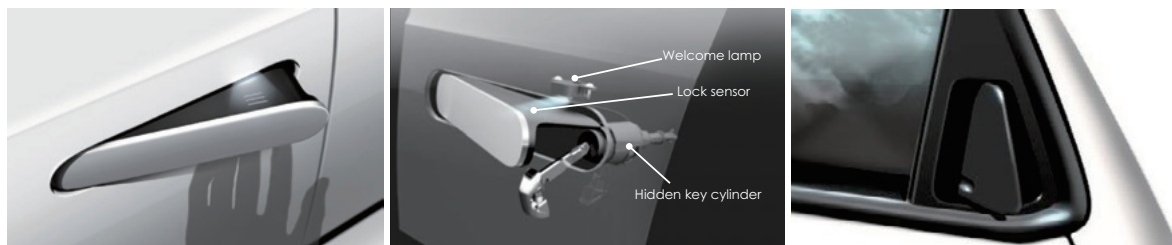


Fig. 10 Front and rear flush outer door handles

3.8. Body Colors that Highlight the Styling

A lineup of seven colors was prepared for the exterior body color (Fig. 12). The white, silver, steel metallic, and black produce a basic beauty, while the blue and red produce a fine-quality beauty.

The new color of charge yellow provides a simple yet solid feeling of quality in a highly saturated yellow. This color was created to highlight brisk driving and an exhilarating feeling. The bright, lively color also adds visual contrast to the iconic grille, the charge lid, and the

black-out cabin.

These two highly contrasting color tones further enhance the production of the simple and modern Honda e character. In order to convey a feeling of quality that highlights the simple, non-noisy exterior design, the color was made to have a solid-like texture. Seen from a distance, the color gives the quality feel of solidity and presents a clean, uncluttered surface. Seen close up, the slightly metallic admixture produces a sensation of hardness (Fig. 13).

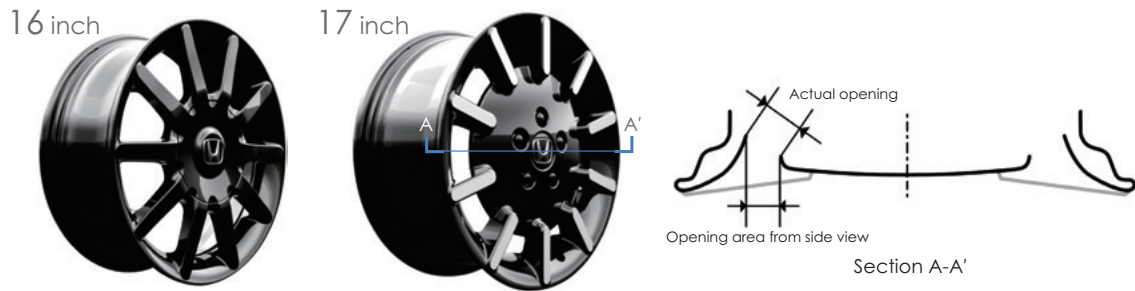


Fig. 11 Wheel design



Fig. 12 Exterior color lineup

Iconic color

Solid texture

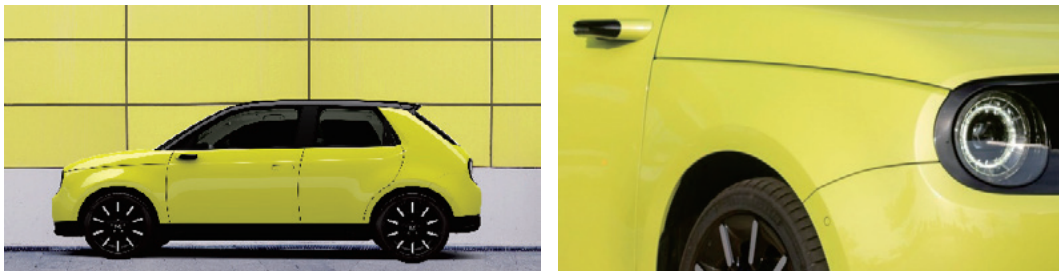


Fig. 13 New charge yellow

4. Interior Design with Cozy Comfort

4.1. Approachable Image of Mobility Also Informs the Interior

Work on the Honda e interior design was begun with a ground-up review that was not swayed by existing car values. This approach embodies the desire to expand the value of this car beyond just a mere unit of mobility.

The question of how the conceptual approach of this design, formulated as “Affinity & Modern,” should be expressed in the car interior was thus carefully considered before specific styling measures were begun.

This began by examining an era in which mobility and people’s lives are connected together seamlessly, a connection that brings prosperity to everyday life. Attention was focused on the value of such a mobile space when it becomes a living space that is rooted in daily life. From that emerged the desire to have the interior express a modern quality that conveys the feeling of a new lifestyle that is people-friendly and tranquil. This examination produced the notion that the value embodied in people’s living rooms would fit precisely and comfortably in this vehicle.

This is the concept that a living room with a good-quality sofa and table and a large TV monitor (Fig. 14) extends outward. In this case, it seems that it could be possible to provide an experiential value that feels like a seamless expansion of the living space. The value of the living room is itself often expressed in terms of styling motifs and the use of materials with good texture, but in the design here, the reference expands to include actual usability.

Another consideration is that EV recharging facilities in private homes have not become widespread. For this

and other reasons, it was thought likely that there would be more opportunities for recharging at destinations away from home. Where refueling with gasoline takes about five minutes, recharging generally differs in that it takes a minimum of about 30 minutes. It was envisioned, therefore, that the user would sometimes wait in the car until recharging was complete. For this reason, it was reasoned that for situations when users stop the car and wait inside while recharging, it would be desirable to create a space in which they could relax comfortably. This may become even more necessary in the near future as automated driving becomes more widespread. It is hoped that this kind of conceptual approach may lay the groundwork for the next generation of value.

4.2. Interior Space Conveys the Feeling of a Cozy, Comfortable Living Room

The Honda e is equipped with numerous advanced devices such as the Honda CONNECT widescreen display, which is long enough from side to side that it can be easily viewed and operated from both the driver’s and passenger’s seat. There is also the side camera mirror system, which displays the images from the side mirrors at either side of the instrument panel where they are readily visible. The aim was to build these into a simple, tranquil, living room-like space, and every effort was made to that end. The result is considered to be a design that successfully achieves the coexistence of a highly advanced quality with simplicity and modernity (Fig. 15).

The upper parts of both front and rear doors as well as the armrests are covered with fabric in the same way as the seats. This is a heavy fabric that does not stretch much at all, and this imposed limits on how it could round corners and



Fig. 14 Conceptual image sketch

be handled at end-points. The shapes that were produced after examining such considerations, however, present an atmosphere and other qualities in their curved surfaces that seem even more natural than otherwise. The shapes turned out to be people-friendly and pleasant to the touch.

For the contours of the seats, steps were taken in where and how they were covered according to the shape and the fabric, so that they help to create an atmosphere unlike those in regular Honda vehicles. The rear seats, in particular, were arranged in a form like a two-seat sofa. The same fabric was also used on the side bolsters and rear door armrests to create a space that, while compact in size, is seamlessly unified as a whole. The aim was also to produce the visual effect of a space that appears to be expansive (Fig. 16).

4.3. Instrument Panel with Horizontal Arrangement of Five Displays

The aim of creating a highly advanced and usable interior space of a kind never experienced in a car was accomplished with an 8.8 inch meter display and a pair of 12.3 inch displays in the middle, then two 6 inch CMS displays, one at either end. These make up the world's first instrument panel with a total of five displays arranged horizontally. The displays do more than just provide new enjoyment and comfort, as they were designed with the goal of forming new links between people and the car by means

of a diversity of connectivity.

In the course of realizing this set of displays, the issue arose of how to settle them into the space so that they would fit comfortably without jarring. This was because, although this kind of horizontally extended display is commonly seen in concept cars and other such contexts, the attempt here was the first not only in a Honda car, but in a mass-production vehicle. Since the horizontally extended panel holding the displays was flat and linear, the approach taken was to use that to advantage and make the horizontal straight lines a motif for unifying the whole and completing it with the keynote of simplicity. As it turned out, this made for a well-balanced styling that contributed to the achievement of a modern living-room space.

As a secondary effect, this approach left the upper surface of the instrument panel clean and uncluttered. The result is believed to lighten the influence of the displays on the driver's field of vision.

The wood-grained panel that forms a horizontal motif can appear to be similar to a living room table and here again, this is not just a distinctive decoration meant to produce a visual effect. The panel was also intentionally shaped to provide a place where people can rest the palm of their hand, making operation of the touch panel display easier when the car is moving and so helping to prevent mistaken operation (Fig. 17).



Fig. 15 Interior sketch



Fig. 16 Front and rear interior designs

In this way, the interior design of the Honda e is shaped and carefully arranged as a cozy, comfortable space, and no effort was spared to connect these qualities closely to usability and functionality.

4.4. Equipped for Comfort with Advantageous Use of Materials

The previous section touched on some ways in which attention was given to creating shapes and equipment was arranged advantageously for usability. Two instances of this will be explained here.

First, there is the cup holder for use from the driver's seat. The front seats in this car are arranged so that people can walk through from one side to the other. This made it necessary to leave enough space between the instrument panel and center console to allow people's legs to pass through. For this reason, a cup holder that slides in and out drawer-like from the console was adopted. If the handle on that holder were a typical resin part, however, people could be expected to hit their legs against it when walking through, which would make it a jarring element in that environment. A soft synthetic leather strap was therefore used for the handle. Similar care was put into the color.

It was made brown with stitching not only for visibility when people are seated, but also for the appearance of high quality to the eye as well as for a better feel to the hand when pulling out the holder (Fig. 18).

The other example is the central lower pocket under the instrument panel.

Here, similarly, every effort had to be made to create a workable pocket while having to take every possible measure to keep the pocket from projecting outward. Thus, the same fabric used for the seats was adopted for the pocket.

This makes it possible to put away a smartphone or other such device while keeping it connected and charging. In addition, this also helps limit rattling and damage to such devices while the car is in motion. A smartphone that is connected can be operated using Android Auto, Apple CarPlay or similar apps (Android Auto is a trademark of Google LLC; Apple CarPlay is a trademark of Apple Inc.).

Cables for connecting devices often present challenges on how to route them and where to store them. Here, the pocket makes it possible to keep them with the device, and when they are not in use, to bundle them up neatly and put them away (Fig. 19).

These two equipment examples illustrate how the design



Fig. 17 Instrument panel



Fig. 18 Cup holder

created through this kind of repeated examination with careful consideration given to details of function was also successful in increasing the friendly, approachable quality in the car's attractive overall appearance.

4.5. Warmth and Natural Texture Sought in Wood-grained Panel

In order to achieve a high-quality texture that elicits the warm feeling of a living room table, development of the wood-grained panel was designed to make it seem like the real thing.

Walnut is often used for ordinary furniture, and that is the wood-grain pattern adopted here to recreate the living room as a living space. Multiple colors were also overlapped to recreate the complex coloration of natural wood grain. Although the decoration here is a film, it produces the three-dimensional effect of wood grain's irregular surface, which is formed by capillaries, and so can also convey the warm feeling of real wood in terms of tactile sensation. The angle of the panel was determined through examination of the ease of touch operation of the display and the reflection

of the wood grain in the display image (Fig. 20).

4.6. Fabric Evoking the Modern Living Room

As noted above, what was sought for the interior was a design that has a friendly, approachable quality and that would remain interesting. For the material covering the seats and doors, therefore, a melange-toned fabric that imparts a feeling of friendly familiarity was used. This thick, high-quality woven textile combines varying shades of grey to produce a modern living room space.

For the seatbelts and the tags on the side airbags in the front seats, a brown was selected to harmonize with the wood grain color. Seatbelts, tags, and other such functional parts are not ordinarily considered as decorative elements, but here they were deliberately colored to play a role as interior accents. Brown accents go well with grey upholstery and they produced an added note of opulence in the space conceptualized as simple.

Some parts of the doors and seats have zigzag stitching, creating points of attention that are pleasing to the eye and elicit an affectionate feeling (Fig. 21).



Fig. 19 Central lower pocket



Fig. 20 Wood grain tone panel

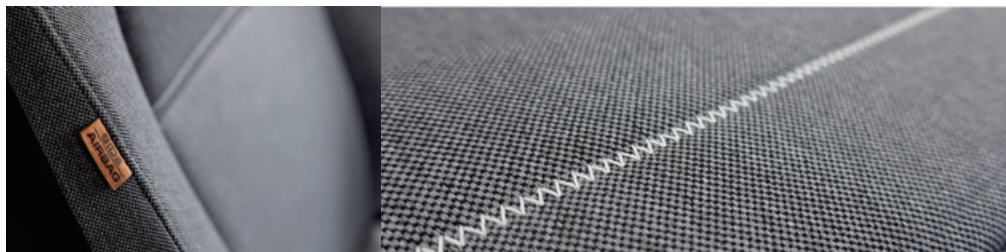


Fig. 21 Expression of living room

5. Responses from the Market

Although the Honda e was only put on sale in two markets, Europe and Japan, it received notable recognition in the form of numerous awards that are highly regarded around the world. Some of these were awards that were being won for the first time by a Japanese car, and some were awards specifically for design (Fig. 22).

6. Conclusion

Development of the Honda e began only after other companies had already brought out mass-production EVs, and it goes without saying that Honda members had the shared, distinctively Honda feeling that they would never make a car that is like another company's product. This also served as one of Honda's specific responses to the



Prize	Country	Awarded in
AUTOBEST 2021 Awards – ECOBEST title	Europe	2020
German Car of the Year 2021 – overall winner, 'New Energy' category *	Germany	2020
Red Dot Design Awards – Red Dot: 'Best of the Best Car Design' & 'Smart Product' **	Europe	2020
News International Motor Awards 2020 – 'City / Small Car of the Year'	UK	2020
Autocar Best Car Awards – 'Best Car Tech'	UK	2020
AutoGids Best Car Awards – 'Small Electric'	Belgium	2020
EuroCarBody Awards 2020 – Winner, Volume Segment	Germany	2020
The Les Numériques Digital Star 2020-2021 for 'Connected Car'	France	2020
Axel Springer Motor Awards – 'Best Design' **	Spain	2020
Denmark Car of the Year 2021 Awards – The Innovation Award, The Car-Joy Award	Denmark	2020
The Best of Moto Awards – Alternative Drive, Design	Poland	2020
Automobile Awards by Motul – Design **	France	2020
2020 TopGear.com Awards – City Car of the Year	UK	2020
'Most Exciting Novelty/New Car' from Vezess.hu	Hungary	2020
JIDA Design Museum Selection Vol. 22 – Gold Selection **	Japan	2020
Japan Automotive Hall of Fame – 2020-2021 Car Technology of the Year	Japan	2020
2021 Women's World Car of the Year – Best EV	World	2021
UK COTY (Car of the Year) Awards 2021 – City Car of the Year	UK	2021
World Car Awards – 2021 World Urban Car	World	2021

* First award to a Japanese car ** Design award

Fig. 22 Awards given as of April 2021

future carbon-free society that began with the European strengthening of CAFE standards from 2020 on.

Issues like these were viewed positively by the team, as they did not conceive of this car as the EV that would supplant the generation of gasoline-powered vehicles. They consolidated their response as such, within the compact size of an EV that would be the ideal for an in-town car. To further enhance this car's appeal as a product, despite its compact size, they unstintingly adopted rear-wheel drive powered by a high-output electric motor, a platform intended exclusively for use with an under-floor battery, large-format displays, and other advanced technology that were firsts for Honda.

Meanwhile, the design development team conducted research in Northern Europe that yielded their direction, formulated as "Affinity & Modern." Working from this, the team went on to give concrete form to "a car that would be like a partner bringing advanced modern technology into a relationship of affinity with people."

Honda exhibited it for the first time at Milano Design Week 2019. This was an opportunity for a special exhibit centered on the prototype, but reports indicate that the exhibit received strong support from furniture, fashion, and other non-automotive designers as well as from the mass media.

"Honda" was used in the car's name in part to heighten the brand's presence in Europe. The numerous, highly regarded awards received suggest that this purpose has been achieved.

Measures to counter the COVID-19 crisis have had an unfortunate impact on new car announcements and news coverage in Japan, which have taken place in a remote environment. Even in this context, however, there have been many video reports posted by customers themselves who have used EveryGo (Honda's car rental and car-sharing service) to take test rides. The magnitude of the response has been astonishing.

The hope even in times like these is that Honda can pursue its mission and continue to provide a vision of cars in a bright future.

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