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DESIGNING RELATIONSHIPS TO NATURE:

Five Narratives to Solve the Climate Crisis by Design

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The primary investigation of this paper is: *How can architects address climate change by designing to place people into rich and significant relationships with Nature?* Architecture is a powerful mediator of the relationship between humans and Nature. Solving climate change will mean having people take action for nature. To have people act for Nature, they must care for it. To care for it, people first have to have a relationship with Nature, which requires experiences of Nature—via architecture. However, contemporary sustainable design in the US takes a particular *prospect* on Nature, one dominated by performance assessment, a valid but limited approach that leaves out ecological pattern, human experiences, and the cultural meaning of “connecting to Nature.” In doing so, it fails to communicate with most of its non-scientific audience and thus disempowers its mission to solve the climate crisis by design. Because building energy use is about half of the cause of greenhouse gases, the building community has the greatest opportunity to create solutions.

The most common contemporary interpretation (or explaining narrative) of sustainable design is that it is defined by its technologies and that improving technologies will lessen architecture’s impact on Nature, and further, that technology is most often defined as energy technology and measured in terms of energy performance. Untangling the stories driving energy use and technology in buildings across generations helps us understand the alternative stories that drive today’s “design with Nature.”

This article engages important, timeless questions from the cultural perspective where our collective stories arise: *How shall we design to relate people to Nature, particularly with respect to energy? What is our understanding of this particular ‘Nature’ to which we want to connect and relate via design? What are our cultural stories and narratives that explain Nature and energy to us?* The article explores different *ideas of what people think Nature and energy are* and their concomitant *intentions* for designing relationships to Nature. Each primary view gives rise to a variety of *metaphors in language* that can describe its understanding. When used consciously, these design metaphors are powerful tools for generating design solutions and for organizing the many smaller ideas contained in any design project. Each primary view uses its metaphors to construct a different story about energy and natural resources.

Keywords: metaphor, story, design intention, levels of complexity, traditional, modern, postmodern, integral, integral theory, nature, building energy use, climate change, carbon-neutral, net-zero

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1 INTRODUCTION

Stories have many manifestations in architecture. Metaphor is a typical language device used to communicate design ideas and from forty years of experience in the field I can say that it is the basis of most architectural narratives. Narratives in design are a kind of myth, which is simply an explaining story. Architects tell stories to themselves as part of the design process. Postmodernism would tell us this is a manifestation, often unconscious, of a nearly invisible background cultural context operating both in a larger wave and in the smaller cultural circles of design. Because most architects see themselves as creative, they also reshape or reinvent at times the narratives that they operate within. Each building has, to differing degrees, a creation story. Further, architects can read building narratives and extract meaning from the stories embedded in the symbolic language of built works from different times and cultures. They use this symbolic, metaphorical language of architecture to further embed new stories and variations in the work.

Building energy use in the US is about equal to the industry and transportation sectors combined! Buildings are really the big elephant in the room that many people ignore when talking about the climate crisis. In 2003, the cover of *Metropolis* magazine carried the headline, "Architects Pollute!" Architects began to wake up to the fact that buildings use about half of world's energy, that they run almost entirely on fossil fuels, and that therefore buildings are responsible for about half of greenhouse gases and the resulting changes in climate. It is this fact that makes this generation a most exciting time in history, one in which many of us will live to find out whether or not we will succeed as a species in doing collectively what no past generation ever even imagined doing: keeping the planet from warming by 2°C (or the more ambitious IPCC target of 1.5°C). It is mainly because of this extraordinary challenge that we are also at the most exciting time in architectural history. The larger the challenge, the larger is the opportunity to make a difference.

The building community has the opportunity to solve the climate crisis by design, but this paper will show that solving the technical problem of buildings' fossil energy use can be helped or hampered by the narratives that move us. Within the design fields, designing to manage resources or reduce pollution, such as by reducing fossil fuel use, is part of a rather long tradition of "designing with nature" in which both nature and our design responses can be seen in many ways. However, designers cannot seem to agree on how we should "design with nature." Ian McHarg (1969) taught that we should locate human uses according to the constraints and opportunities set up by the spatial distribution of natural resources. Andres Duany and the New Urbanists claim that the city is cultural and not natural: the more urban the zone in the New Urban Transect concept, the less green and the more dense and built-up they think the city should be (Duany, et al, 2010). Frank Lloyd Wright built a house on top of a waterfall, symbolically merging architecture and nature (Stoller, 1999). Proponents of the City Beautiful movement

thought large urban parks would heal the ills of city dwellers brought on by the 19th century industrial city. Paolo Soleri (1973) defined arcology as the synthesis of architecture and ecology in dense three-dimensional mega-structural cities using natural energy flows. An army of LEED²-following architects chase a way of building more benignly for the environment based on what can be measured and weighed. James Wines (2000) and the SITE firm focused instead on the experiential and narrative aspects of green architecture. The list could go on. How can we interpret this multitude of approaches, each attempting to establish or re-establish a better relationship between people and nature by the ways we build? Why are they so different? What is Nature to each of these?

Is sustainable design really just all about performance? Perhaps not. The Biophilia Hypothesis, the idea that humans have an evolutionary affinity with the natural world and that this attraction is rooted in biology, was introduced by Harvard biologist Edward O. Wilson (1984) has been taken up by a growing movement of designers interested in connecting people to Nature (Kellert, 1993; Beatley, 2011; Kellert and Hewrwagen, 2008). Biophilia advocates argue that, while resource efficiency and reduced pollution by buildings are important goals, our relationship, indeed our attraction to other life forms and living systems is also important. If, as Aldo Leopold (1949) told us, we humans are members of a community that is “the land,” then how would we build, not only ethically to preserve and honour the rights of others in our community, but also to foster our relationships in that living community? Unfortunately, the trends seem to move in the opposite direction: more children and adults are spending more time in technologically-mediated indoor environments away from nature. Visits to national parks and participation in outdoor sports are declining. The effects of these has led Richard Louv (2008, 2011) to hypothesize a serious cultural “Nature Deficit Disorder” first used to describe the widening gap between children and nature. Louv asks, “What would our lives be like if our days and nights were as immersed in nature as they are in technology? How can each of us help create that life-enhancing world, not only in a hypothetical future, but right now, for our families and for ourselves?”

This article expands on the theoretical views introduced in the book, *Integral Sustainable Design: transformative perspectives* (DeKay, 2011), which was the first work to apply Integral Theory (Wilber, 2000a, 2000b) to design, and in particular to the field of Sustainable Design. Figure 1 shows one of its fundamental concepts, ‘The four Sustainable Design perspectives.’ Following Wilberian Integral Theory, the proposition is that each perspective is ever-present in all languages and cultures and that each both discloses and occludes certain phenomena. Each of the four (designated here as UR or Upper Right quadrant, etc.) uses different methods and has different and irreducible criteria for value. They represent the classic academic domains of the arts [UL quadrant], the humanities [LL], the basic sciences [UR], and the complex sciences [LR]. Applied to

² Leadership in Energy and Environmental Design, a North-American rating system for buildings.

the consideration of Sustainable Design, the framework reveals that much if not most of the contemporary architectural dialogue about sustainable design takes the Perspective of Behaviours [UR] and is concerned primarily with performance that can be 'measured and weighed.' Though important, it is a partial view. The Perspective of Systems [LR] reveals that eco-efficiency is not enough to create healthy ecological patterns and that a logic of 'systems and relationships' can be used to organize the UR logic of 'parts and performance.'³ However, even taken together, these objective-only right side perspectives are incomplete and leave out the entire realm of human interiors. It may be that paying more attention to the Perspective of Experiences [UL] and The Perspective of Cultures [LL] has the potential to vastly expand the effectiveness of the objective arguments for 'design with nature' to improve building performance and make ecologically fit built environments. Simply objective, mental arguments often fall on deaf ears for people oriented primarily from perspectives that value the subjective (what it feels like to me) and its 'logic of intentions and experiences' and the inter-subjective

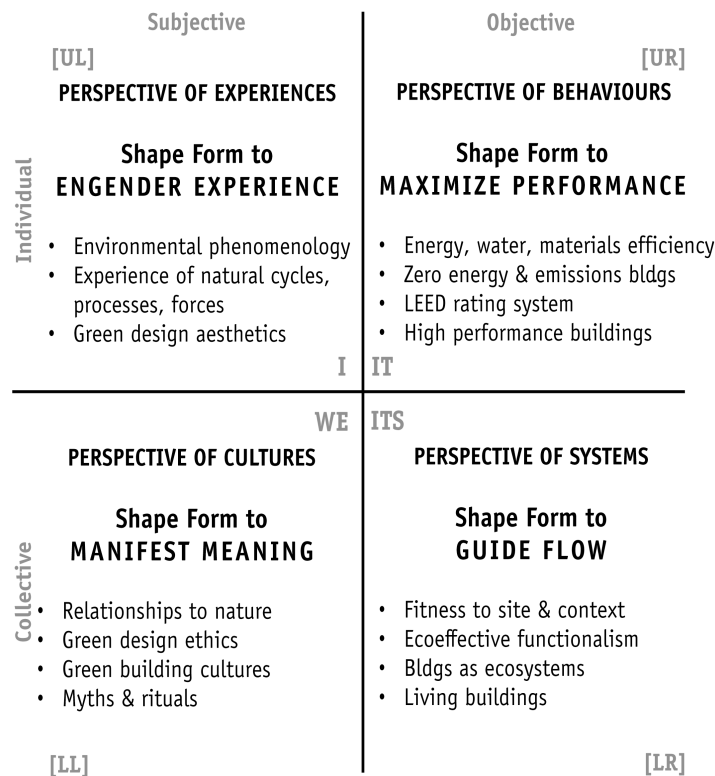


Figure 1: The four Sustainable Design perspectives

³ The distinctions among the logics of 'parts and performance,' 'systems and relationships,' and 'myths and meanings' as alternate perspectives on architectural design and design education were given by Lance Lavine in Shibley, et al (1984).

(what it means to us) with its meaning-making stories, its 'logic of myths and meanings.'

It is this cultural view, which gives rise to design's myths and meanings, along with its relationship to the performance actions in the design community, that is the subject of this discussion. In delving into this view, we are approaching the theme of "narratives and storytelling" about design and climate change in three senses:

- *Story as guiding myths that form the operational context for design*
- *Story as the explaining narrative spun by designers about their works*
- *Story as the symbolic communications given by buildings about nature and human relationships to it.*

The first aspect of story is like when "Mother Culture whispers in your ear," as the intelligent gorilla protagonist in Daniel Quinn's novel *Ishmael* puts it (Quinn, 1992). It is with us all the time, but hard to hear, until one does, and then it often screams. It is the ideological air we breathe, so ever-present as to be backgrounded to our unconscious. We can more easily see the myths of other cultures, particularly from the past, as their symbols are often more literal and foreign to us. We seem more challenged to find the mythic story that guides our own lives in the present. As this article unfolds, the proposition is that there are actually several simultaneous competing stories.

The second notion of story is easier to hear, but often also challenging to interpret. This is because designers use a peculiar kind of ambiguous language, often filled with jargon or the use of words with local professional meanings. Design is full of both order and mystery, in keeping with its position as an applied art. A building design embodies hundreds of thousands of decisions, and to make its solution legible, designers tend to craft stories about which issues and decisions are significant enough to shape and organize the final product.

In the third idea of story, we can recognize that architecture is a cultural product, manifesting a set of values and employing a symbolic non-verbal language of form that can be read and interpreted in the ways similar to how art and graphic design convey meanings. Sometimes the designer is more conscious of this process, sometimes more a product of her times. As in some great works of music, the public can interpret the meanings clearly, yet in others, more knowledge is required to gain a deeper appreciation. Nevertheless, buildings remain one of the most enduring aspects of cultural story-telling. The academic discipline of architectural history and theory is built on unpacking this third idea of narrative.

2 LEVELS OF COMPLEXITY AND WORLDVIEW

It is possible for conventional performance-driven Sustainable Design to expand to include design as meaning-making stories, since ‘We used less stuff’ is not a particularly inspiring theme for an explaining story of sustainable architecture. Design patterns encode cultural meaning that communicates to occupants through their symbolic and metaphoric language. “Green” design can embody our significant myths, stories, and beliefs about how society and Nature are related. If we accept this as true (or even conditionally true as an exercise), this idea, that part of design’s role is to manifest our culture’s idea of Nature, to convey it, and to relate people to it, then many questions arise:

- *What are these beliefs that we weave into a view of Nature, energy and climate change?*
- *Is there one Nature or many in our culture today?*
- *Given what we think Nature is, the nature of climate change, and the way we view them—and our relationship as humans to Nature—how shall we design to tell that story?*
- *What intentions can designers hold when ‘designing relationships to Nature,’ especially relative to energy and climate change?*

One explanation for the different ideas of Nature present today is that multiple worldviews are operating simultaneously in contemporary society and that these worldviews hold different perspectives, employ different languages and have different values. It is not hard then to make the leap to apprehend that different ‘languages’ (ways of using language) and values give rise to different explaining stories. *Integral Sustainable Design* (DeKay, 2011), outlined five levels of depth and complexity for design practice, shown in Table 1, and based on tenets of Integral Theory (Wilber, 2000a, 2000b; Esbjörn-Hargens, 2009; Esbjörn-Hargens and Zimmerman, 2009; Combs, 2002; etc.) and a deep body of empirical literature about human development (Kegan, 1982; Beck and Cowan, 1996; Torbert, et al, 2004; Wilber, 2000c; Miller and Cook-Greuter, 1994; etc.).

Readers are referred to the sources above for more detailed explanations of both levels of complexity and lines of development—including development in human individuals, social systems and cultures—in their theory, evidence, and application to each of the four fundamental perspectives. In this integral model, for each of the four primary perspectives, complexity increases with successive stages.

The distinctions and historic progression from the Traditional/pre-Modern era to the Modern era to the Postmodern era are familiar to most designers and more or less are present in popular culture. Architecture was among the first disciplines to begin practically employing the language of Postmodernism in the 1970s. What is less clear to many is that these external formal and stylistic expressions of intellectual movements are correlated with developing collective worldviews. For example, in presenting and discussing these ideas with architects, even with

architectural academics, many associate Postmodernism with its formal and organizational manifestations or with its relative ideological disdain for architectural science. Unfortunately, this view misses the ideas and theory behind the multiple forms.

This article focuses only on these worldviews as they manifest in our understanding of and response to Nature and climate change via design. Integral theory uses levels of complexity, often in developmental sequence, to help explain one facet of many kinds of phenomena. For example, developmental research shows that moral development shows sequential stages beginning in childhood from egocentric (self-care only) to ethnocentric (care for my family or group) to worldcentric (care and concern for all)—in that order and never otherwise. Development of complexity in a stage-like sequence can also be used to understand movements and worldviews. While a detailed explanation is beyond the scope of this paper, the kinds of worldviews shown in Table 1 will be used to explore different ideas of Nature.

Table 1: Five contemporary levels of complexity in design practices

<i>Worldview</i>			<i>Design structures</i>
Level 5	Transpersonal	>	Unitive Perspective
Level 4	Integral	>	Transformative Networking
Level 3	Postmodern	>	Pluralistic Practices
Level 2	Modern	>	Independent Professionalism
Level 1	Traditional	>	Guild Traditions

In general, higher levels in the table, following systems theory, exhibit greater complexity and develop later in historic time (and for individuals, later in life) than less complex stages. “Higher” levels of complexity can also be considered as more significant and less fundamental, and in their healthy expressions, to transcend and include the lower levels. They are therefore “deeper,” which is what is meant by “more significant.” Table 1 gives orienting generalizations about both worldviews and the kinds of design structures that emerge from each worldview. Whether one accepts the developmental sequence or the other claims for the relationships of complexity as proposed here is less important for this article’s discussion than the recognition of the worldview distinctions themselves, or something approximating them.

If multiple worldviews are simultaneously operating and present in the contemporary world, and if Nature is understood differently via multiple or competing narratives because of these, this has profound significance for sustainable design and its solutions to climate change.

3 METAPHORS FOR NATURE

In language, metaphors and other figures of speech play a central role in our understanding of Nature and our relationship to it, and designers often use metaphors as part of generating design solutions. Because two kinds of objects or ideas are associated, designers can find new combinations that offer inventive ways of seeing a project. Our language:

...implicitly and explicitly carries values and ways of seeing; it lends itself to contradictory interpretations and uncertain meanings, and is intimately related to how we experience and give meaning to the world (Meisner, 1995).

If the four fundamental perspectives (Figure 1) are overlaid with concentric circles representing the five contemporary design structures (Table 1), then the resulting diagram can be seen in the Level 5 illustration at the top of Table 2. Table 2 lists some common metaphors for Nature found in art, literature and common expression, organized at five levels of worldview complexity. Each level has been given a generalizing metaphor, such as 'Nature as the Great Web of Life,' for the Level 3 Postmodern worldview. Within each level, several additional metaphors are listed, and can be read, for example, at Level 3, with the form of, 'Nature as a complex, integrated system,' 'Nature as a cultural construction,' and so on. Each level of complexity that humans use to understand Nature reveals a different idea of Nature. These ideas of Nature are actually complex situated narratives that get collapsed into the short form of our common metaphors. Each metaphor stands for an explaining story or part of one.

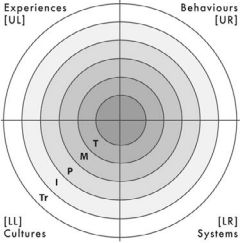
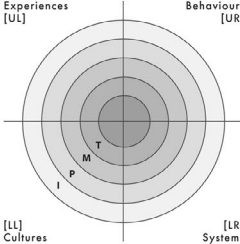
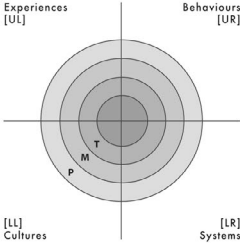
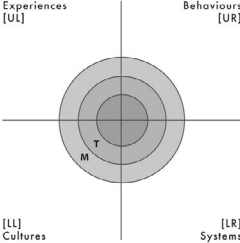
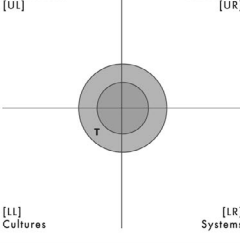
3.1 Traditional ideas of Nature

The Traditional level in this design framework includes vernacular and classical traditions, ancient and Medieval, Renaissance and Baroque, along with the neoclassical, Beaux Arts and neo-romantics. Admittedly this is a substantial compression of history and of ideas. We are in the realm of large 'orienting generalizations' here. Two significant Traditional ideas of Nature remain influential in the contemporary psyche: Nature in the pre-Modern world was most often thought of as *wilderness*, which has taken on two views in Western culture (Light, 1995):

- *The classical idea of Nature as savage and uncivilized*
- *The romantic idea of Nature as a pure place of dignity, untouched by humans.*

The Classical view is close to 'hell on earth'; In the Genesis story, Adam and Eve were cast out of the paradise garden into the wilderness. Wilderness for the classical was dangerous, the home of savage people, ruled by passions and emotions, with little self-will and self-control, home of, in addition to wild animals, the wild side of humanity and symbolically, all the darkneses of the human psyche. The wild is a threatening if not evil force over which humans must reign superior in the fight. This is a nature to be conquered. In *Magnalia Christi Americana*, the puritan minister

Table 2: Historic metaphors for Nature from five worldviews

Level of Complexity	Metaphor: Nature as ...	
Level 5 Transpersonal 	the Great Self Manifesting consciousness the self (unity identity) expression of Tao dance of Shakti abode of Spirit manifestation of being the body of God	
Level 4 Integral 	the Great Matrix of Perspectives the living community holarchic contexts (networks of networks) global ecosystems living system or being	light/fire Kosmos vibrations embedded in culture co-arising with culture intersection of multiple perspectives and levels energy patterns/chi
Level 3 Postmodern 	the Great Web of Life a complex, integrated system processes and networks harmony in diversity text for interpretation food web Gaia	cultural construction perspective taken chaos/complexity home/bioregion a community of species victim/oppressed
Level 2 Modern 	the Great Natural Environment tree/organism pyramid/hierarchy machine clockwork universe book to be read	agricultural crop/farm bountiful resources amenity/commodity objective view
Level 1 Traditional 	the Great Primeval Garden enchanted realm/gods sacred trust woman/mother handmaiden of God friend/teacher/healer divine perfection/miracle	the Great Biosphere the great wilderness a great fabric macrocosm of man music of the spheres great chain of being lost Paradise

T = Traditional, M = Modern, P = Postmodern, I = Integral, Tr = Transpersonal

Cotton Mather (1702) writes, “Where a wilderness exists a garden should be made,” and famously, “Wilderness is a temporary condition through which we are passing to the Promised Land.”

The Romantic view reacts to the isolated culture created by the classical separations. In the Romantic view, wilderness can only be corrupted by humans. Can you see how this gives rise to an obstructionist or preservationist view of environmentalism? The Wild is a place of reverence, of cleansing, a place for meditation as a path for clarity, a place of healing and spiritual sustenance. Romanticism “upholds the mysterious, spontaneous, often spiritual side of nature and the man-made” (Crowe, 1995).

Romantics wanted to heal the perceived split between culture and Nature. At the same time, the great Romantics—especially the transcendentalists—pursued Nature as Spirit or the abode of Spirit. Thus there is much confusion about the Romantic tradition because it has taken two directions, both still with us in practice:

- *the regressive, pre-rational, back-to-nature view, a merge with the Great Biosphere (right-hand quadrants) or, in more contemporary expressions, the Great Web-of-Life (Postmodern level of right-hand quadrants), and*
- *the evolutionary, trans-rational, transcendentalist view, a merge with the Great Nest of Being (all the levels in Table 2).*

This first version of the Romantic view of Nature celebrates the sensory and emotional contact with Nature. It focuses on unity with the *exteriors* of the larger system, the web-of-life. Humans essentially become natural animals, and the physical and biological levels less complex than culture are celebrated. If Romantics want to get ‘back to nature’ it is not the wild, untamed, disordered, chaotic, dark, Classical Nature that we must fight against lest it overtake us. It is most often a longing for the idealized Nature of the Garden of Eden, of Nature before the ‘fall’ or a wilderness in which modernity is an offense. James Fenimore Cooper’s Hawkeye proclaims of the New England forest:

Books! What have such as I, who am a warrior of the wilderness, though a man without a cross, to do with books? I never read but in one, and the words that are written there are too simple and too plain to need much schooling; though I may boast of the forty long and hard-working years (Cooper, 1826).

The second romantic view does not belong to this level at all, but to the Transpersonal. As Thoreau (1854) writes in Walden:

We need the tonic of wildness...At the same time that we are earnest to explore and learn all things, we require that all things be mysterious and unexplorable, that land

and sea be indefinitely wild, unsurveyed and unfathomed by us because unfathomable. We can never have enough of nature.

Even in the pre-modern worldview, Nature is different things. Should we build to protect and isolate ourselves from Classical Nature or design for merging with Romantic Nature?

3.2 Nature as the great natural environment: Modernity

Integral Theory argues that Modernism differentiated the three great domains of value: art, science and morals (I, We and It/Its); or put another way: Modernism differentiated *self, Nature, and culture*. Nature for the Modern became articulated as the exclusive domain of the sciences, distinct from the church, from ethics, morality, culture, worldview, aesthetics, subjectivity, art and meaning. In the 19th century, Nature was stripped of its metaphorical aspects and became considered almost entirely as it manifests in the quantitative and literal thinking of empiricism and scientism. Nevertheless, the scientific view of Nature is also an explaining story: that Nature is mechanical, 'disenchanted,' and available for rational study; it can be mapped and understood. The order is vast and complex, but ultimately all related, and in time, humans would fit it all together in a harmonious, interlocking, system of objective 'Its'. As Kelper wrote in 1605: "My aim is to show that the heavenly machine is not a kind of divine, living being, but a kind of clockwork." (Kepler 1605; cited in Peterson, 1993).

Moderns became so enamoured of the perspective supported by this narrative that they denied realms, domains, or planes higher or other than the material. If there were only objective exteriors in the Modern world, then human interiors were not *really* real. With no subjective interiors, Moderns mostly came to view the world as having no higher levels at all, just the biosphere. We began to tell the story that the universe could be seen as a clockwork and Nature as a hierarchical food pyramid. Metaphorical language developed around the idea of Nature as an economic system: resources, timber harvesting, fish stocks, weed species and Nature as a farm.

Architecture, as a visible manifestation of the economic system is literally made of the Earth's products: wood, stone, brick, and the crust metals, and buildings and cities operate on extracted fuels. If buildings are formed and sustained by resource flows, what does that mean for contemporary architectural practice?

3.3 Nature as the great web of life: Postmodernity

The Postmodern Level of consciousness shows up in both the Systems Perspective and the Cultures Perspective. In the Systems Perspective [LR] Nature becomes seen as more complex, as a web of relationships, as a complex integrated system. It makes use of advances in systems thinking to view nature as dynamic and networked, based on sophisticated mappings of information, materials, and energy flows. The story that emerges alongside this understanding,

one clearly adopted by the environmental movement, is encapsulated in words attributed to Chief Seattle:

Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect.

From the Cultures Perspective [LL], the Postmodern Level gives rise to the awareness of multiple views and the consciousness of perspectives. Perspectivalism can be in some sense be equated with Postmodernism. The complex sciences moved from what they called an *atomistic* view of Nature (a reductionist study of the parts) to a relatively more *holistic* view (systemic), a shift from the dominance of the sciences in the Behaviours Perspective [UR] to a dominance of the Systems Perspective [LR], a shift from physics to ecology. Meanwhile, the cultural view shifted from the *representational paradigm* to the *perspectival paradigm*. We can understand this as a shift from seeing science as representing the truth to taking a perspective on what is real: “ecology” itself exists in language and is an interpretation of our perceptions. On one hand, Postmodern *holistic science* sees nature as an intricate web, while on the other hand Postmodern *cultural theory* becomes further dissociated from both facts and values in its practice of deconstruction, giving rise to the idea that Nature is merely a construction of culture.

If Nature is a complex web, and humans a strand in it, then architecture is embedded in that system of relationships—with corresponding consequences for architects. On the other hand, if Nature *is* what culture says it is, how can architects know how to design-with-Nature, how to solve the climate crisis, if there even *is* a crisis?

3.4 Nature as the great matrix of perspectives: the Integral level

Where the Postmodernists find relative values and create few distinctions of value, while tending to work against hierarchy in favour of valuing *all* perspectives more evenly, “Integral ecology reinstates the reality and importance of *holarchy*: some truth claims are better – more inclusive, more comprehensive, more insightful, more generative – than others.” (Zimmerman, 2009). The Integral view on Nature can be understood by the language of the ‘Integral Ecology Platform’ of the Integral Institute’s Integral Ecology Center: “Integral ecologists recognize the world-disclosing capacities of all perspectives and the methodologies they use to investigate various domains of reality.” From this worldview, one can inhabit the many perspectives available on Nature and reweave a more accurate if more holographic view. Sean Esbjörn-Hargens (2010) refers to the complex nature of climate change from the integral perspective:

Climate change is a complex phenomenon that is enacted by multiple methodologies from various disciplines. No single method by itself can “see” or reveal climate change in its entirety.

At the Integral level, one can integrate and understand the relations between matter, life and mind, between physiosphere, biosphere and noosphere. The Integralist can also take each of the four foundational perspectives and form a more holistic, holarchic view of reality. Architects operating from the Integral worldview have the challenge to integrate design responses to the complex of varied perspectives on Nature currently available, sorting, distinguishing what is more valuable and relating them.

3.5 Nature as the great Self manifesting: the Transpersonal level

The Transpersonal Level, in our rather broad and simplified system of development, is the domain of the psychic, subtle and spiritual forces in humans and in Nature. *Transpersonal* means ‘beyond personal’, but not as without the personal. The personal levels of self are transcended and included, so Transpersonal means, as Wilber puts it, ‘personal *plus* not personal *minus*.’

At the Transpersonal level, the self is experienced as what Emerson called the ‘Over-Soul’, or what Buddhism calls the Witness, what is sometimes referred to as the World Soul, and what the siddhas of India call simply the (capital-S) Self. At level 5 Transpersonal awareness, the individual can have the experience of being one with all of the manifest world, both humans and Nature. In *Nature*, Emerson writes in 1836:

Crossing a bare common, in snow puddles, at twilight, under a clouded sky, without having in my thoughts any occurrence of special good fortune, I have enjoyed a perfect exhilaration. I am glad to the brink of fear. In the woods we return to Reason and faith. Standing on the bare ground, – my head bathed in the blithe air, and uplifted into infinite space, – all mean egotism vanishes. I become a transparent eyeball; I am nothing; I see all; the currents of Universal Being circulate through me; I am part or particle of God.

At higher stages, context expands, the object of consciousness expands, the ‘I’ as subject expands. This is important to sustainable design because as one identifies with deeper levels of self *within* and with wider circles *without*, taking action to heal and protect the environment becomes more and more spontaneous. While the Transpersonal is presented here as *stage*, it can, as with any level, also be understood as a temporary *state* of awareness by individuals at any level.

4 OVERARCHING INTENTIONS FOR DESIGNING TO CONNECT PEOPLE TO NATURE

We have explored in a broad sketch five worldviews of Nature from different worldviews, but what do they have to say about how we *design* in relationship to Nature? From the Cultures Perspective [LL] (our current prospect for this article), we are not so much interested in how Nature works, or how to functionally integrate design with Nature (which is also very

important when we take the [LR] Systems Perspective). We are more interested for this consideration, given how people interpret and give meaning to Nature and their encounters with it, in how design facilitates intersubjective relationships between people and Nature, including energy and carbon relationships. Given the range of worldviews found in culture today, and the observation that the exteriors of Nature are revealed differently from each worldview, how can architectural design establish for occupants significant relationships with Nature?

How can design connect people to Nature? Underlying the developmental view taken here is the knowledge and evidence that ecological systems thinking and its associated values are Level 4 Integral capacities, but not the highest level of human development by any means. Thus, ideally a significant portion of the population would develop to those cognitive and value levels where they are capable of ecological thought and action. This developmental perspective is also grounded in the proposition that temporary high *state* experiences can possibly act as attractors for *level* (permanent stage) development. Therefore, offered for your consideration are three overarching intentions for designing to connect people to Nature:

1. *Designing to address the full spectrum of developmental worldviews about Nature. This offers an opportunity for each person to have a significant relationship to Nature exactly where they are. There is nothing to fix, as each worldview level is appropriate in its sequence.*
2. *Designing to give breakthrough state experiences of a relationship to Nature. This offers a glimpse of what it is like to see and 'get' Nature from a higher prospect. Peak experiences, as Maslow found, have profound impacts on restructuring consciousness. A peak experience is an experience of the world from a state at a higher level than one's ordinary awareness.*
3. *Designing to manifest the next level in a local culture's dominant worldview about Nature. This offers the potential of shifting the background cultural context influencing individuals' experiences and interpretations. The higher the cultural contextual narrative, the easier the work for an individual's transformations in consciousness.*

5 FIVE INTENTIONS FOR CONNECTING PEOPLE AND NATURE BY DESIGN

Given these overarching intentions for designing to connect with Nature, we can also now look at intentions from each of the five levels of worldview about Nature. Although each level could have multiple intentions, and each of the intentions below could manifest at more than one level in different ways, I have tried to express these intentions in such a way as to stand for the range of intentions dominant or common from each particular worldview. These are summarized in Tab. 3.

Table 3: *Designing relationships to Nature: level, metaphor and intention*

<i>Level of Complexity</i>	<i>Metaphor: Nature as the ...</i>	<i>Intention: Connect people to Nature as ...</i>
Level 5 Transpersonal	Great Self Manifesting	access to the unity of Spirit
Level 4 Integral	Great Matrix of Perspectives	complex living systems
Level 3 Postmodern	Great Web of Life	community
Level 2 Modern	Great Biosphere	resources and services
Level 1 Traditional	Great Primeval Garden	primal force and structure

5.1 Traditional Worldview: Connect people to Nature as primal force and structure.

In this narrative, Nature is a model of perfection, the divine creation, Heaven on Earth. Therefore, designers can create environments where people experience, using their senses in direct ways, the harmony, intention, balance, perfection and beauty of Nature in its rhythms and delights, the ‘music of the spheres’.

From the Traditional worldview, one can *design spaces for human rituals to fit natural rhythms*. For example, operating from this story we are connected to Nature when a variety of indoor, outdoor and in-between climatic experiences facilitate daily and seasonal *migration* in buildings. Charles Correa used two different climatically derived sectional room organizations placed parallel to each other to facilitate seasonal and daily migration (fig. 2) in the Parekh house, located in the composite hot dry-humid climate of Gujarat, India. The ‘winter section’, intended for use on winter days and summer evenings, is located on the eastern elevation where it can be warmed by morning sun. It has roof terraces under a partial shade pergola. The ‘summer section’, a retreat for hot summer afternoons, is placed in the centre of the house, between the winter section and the service core, minimizing exposure to the outside. Its height is used to exploit stack (chimney-effect) ventilation.

Such design strategies as *migration* are a means of embodying intelligence in the configuration of buildings in ways that remove our needs for energy-intensive heating and cooling systems. Space conditioning is the primary user of energy in both residential and commercial buildings. In pre-modern times, the Traditional worldview has no consciousness of greenhouse gases or global climate change and no conception of energy in the scientific sense. Pre-modern builders however, were acutely aware of the relationship among resources, cost and comfort. Accordingly, they developed strategies that fit building form to local climatic resources in ways that minimized resource inputs.

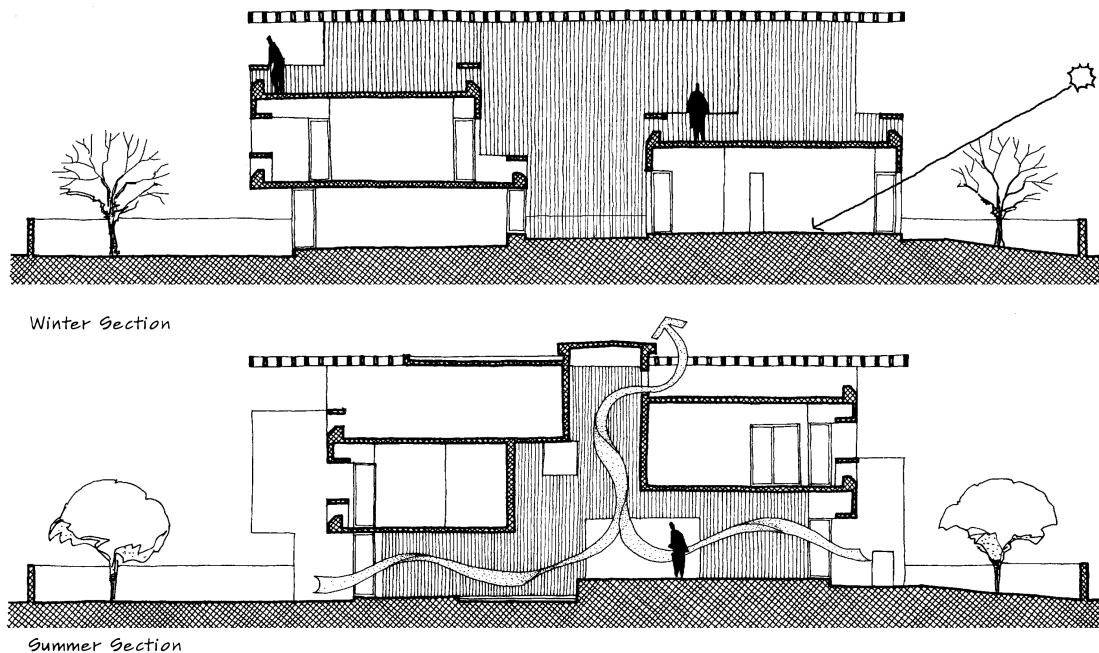


Figure 2: Traditional: migration strategy, Parekh House, Ahmedabad, India; Charles Correa (DeKay and Brown, 2014)

In addition to *migration*, there is a deep language of shared design patterns from historical wisdom, vernacular buildings and traditional architecture that is embedded in traditional building cultures. At its best, contemporary design that accesses the Traditional story is “high thought” yet “low tech,” utilizing design patterns that emerged incrementally over long time periods in response to relatively stable social, technological, and climatic conditions.

5.2 Modern Worldview: Connect people to Nature as resources and services.

In the Modern narrative, Nature is an abundant source of all humans' needs and wants. The *dominant Modern story of design* is that design expresses and responds to its *time* (the Modern age, manifesting in the democracy of industrial design) and to its particular *site* within a universal sense of place (the portability of rational thought and the International Style). Operating from this story, designers can create environments that celebrate and honour with the eye and mind, in rationally transparent ways, the flows of resources—the sun, wind, water, energy, food and materials—and the ecological services, the pollination, purification and so on that Nature provides. Modern worldview architects became aware of the limits of a finite planet with the energy crisis of the 1970s, noting widely for the first time the ways in which contemporary buildings are voracious consumers of energy. What emerged was a concern for the environment as a *crisis of resource scarcity*, the solution for which was conservation (reduce, reuse, recycle),

including energy conservation. This gave rise to a focus on energy-efficiency; initially, climate change was still beyond the horizon of awareness for the design professions.

In the Modern worldview, we can *express touching the earth lightly*. “Less is more,” as 20th century Modernist architect Mies van der Rohe put it, which was an aesthetic expression, but also came to represent the alignment of design elegance with material efficiency, if not energy efficiency. In the Modern narrative, we are connected to Nature when design expresses an *essential reduction* to the necessary. Mexican architect Luis Barragán’s work (Fig. 3) exemplifies an approach to design that expresses a visible thrift by its spare use of ‘pure’ materials in simple and essential forms, unornamented. Barragán’s is an architecture where space is shaped with only a few primary elements; as such, light, colour and texture become more important as the experience of the space itself is forwarded.



Figure 3: *Modern: visible resource thrift*, Barragán House, Mexico City, Mexico,

The Modern worldview is also the home of *building science*, with its value for efficiency. Ideally, it builds on the knowledge of traditional archetypes, by using what works, but transcends the Traditional by adding modern perspectives on energy flows, access to tools and data, structural efficiency, and so on. Today, this Modern scientific worldview has evolved to recognize the problems of climate change. The two most prevalent examples are the preponderance of points in the LEED building rating system given to energy efficiency over all other categories and the focus on operating energy of the “2030 Targets” for fossil fuel reduction adopted by more than half of large US architecture firms. Ed Mazria, head of the influential Architecture 2030 organization, sponsor of the 2030 Challenge targets, suggests that better design of cities and buildings can reduce our built environment’s demands for energy by 70-80% using available knowledge and technologies. Leading edge practice confirms this assertion. After the basic siting, orientation and massing of the building at the archetypal level is handled, a well-designed envelope that moderates heating and cooling loads is needed before any passive cooling or heating strategies using on-site natural energies will be effective.

Modernism may have its dark side, but its own narrative, developed in ignorance of climate change, also offers contributions to climate change solutions.

5.3 Postmodern Worldview: Connect people to Nature as community.

The Modern story has since been transformed into a normative *Postmodern story of design*, which tells us that design expresses and responds to its *time as situated* in a continuity of time (a leading edge with roots in history) and responds to its particular *site within a regional place* (located in biological and cultural region). In this story, Postmodern technology is narrativized as that of its current *and* previous times in its region or other regions.



Figure 4: Postmodern: roof as habitat, Brunzell-Sharples House, The Sea Ranch,

In the Postmodern story, Nature is the relations we have with the great community of other species, all of humanity and with the Earth itself; we share the planet with the web-of-life. Therefore, designers can create environments that forward our caring, protective, and emotional relationships, in topophilic and biophilic ways, with plants, animals and natural communities, in context and in place. Postmodern sustainable designers seek to design for an equitable distribution of environmental resources and risks among people.

In the Postmodern sustainable design narrative, we design to *cohabit the site with 'all our relations.'* We are then connected to Nature when *design becomes habitat.* Nature as an integrated ecosystem is played out and expressed in Bowman's Brunsell-Sharples Residence at Sea Ranch, California (fig. 4). Here an extensive green roof is incorporated seamlessly into the surrounding landscape, thus transforming the house from environmental impact to ecological contribution.

In terms of climate change, the energy problem of buildings is addressed at this level by *passive design*, which transcends the linear thought of classical building science by making buildings that fit the rhythms of nature, using the sun for heat, the wind and earth for cooling, and the sky for lighting (DeKay and Brown, 2014). The environmental movements of the 1960s and 1970s, along with the first energy crisis, also created a budding environmental consciousness in architects and the birth of the Passive Solar movement. Developments in passive solar heated buildings were soon followed by investigations into passively-cooled architecture and daylighting in the 1980s. Designing with natural on-site energies can be thought of as designing *cyclic analogues*, a kind of Postmodern technical thought that has taken several decades to develop. The Postmodern sustainable design narrative is the first to see and respond directly to the problem of architecture's impact on the changing climate. The motivating force expands from saving resources to benefit ourselves to solving a global shared problem for the benefit of humans and other species everywhere.

While operating under the Modern story of design an architect might make a building tight and insulated like a Thermos bottle and supply its energy loads with an efficient machine to supply heating and cooling (high-tech design), from the Postmodern participatory narrative, buildings run on the distributed natural resources of renewable energy, requiring structural thermal storage that can be "thermally sailed," which means tuning the building much like adjusting the sails of a ship to make use of the wind. Designing for occupants to interact with buildings in thermal rhythms is one of the ways that buildings can be created to connect people to nature. Such passive design further reduces the energy demands of buildings bringing the loads down to a point where, for some climates and building types, heating or cooling systems can be eliminated and/or carbon-neutral, fossil-fuel free performance is possible.

5.4 *Integral Worldview: Connect people to Nature as complex living systems.*

The emerging *Integral story of design* is that design expresses and responds to:

- *its time as a present that is an open field in which all possibilities exist*
- *its particular site within nested spatial contexts from materials to regions*
- *its technology as that of all of human history of all cultures applied to the situation as required in its region—and that biology and ecology constitute technological options*

The Integral sustainable designer aspires to integrate multiple processes in Nature with multiple processes in culture. Nature, in this narrative, has the possibility of being united, reintegrated and reconstructed with culture in function, perception and meaning.

In the Integral story, Nature is many things in the great matrix of perspectives. Alliances with natural systems are possible, such as constructed sewage treatment wetlands, living walls and roofs, etc. Integral designers can then create environments that fit to and unveil for us in multiple ways the network structure, dynamic patterns and living interactions of human ecosystems. From



Figure 5: Integral: expressing natural process, Magney House, Australia, Glenn Murcutt (Browell)

the Integral worldview, we can *manifest ecological process as inhabited living systems*. In this story, we are connected to Nature when design *manifests ecological principles*.

Situated on a barren wind-swept Australian site overlooking the ocean, the Magney House (fig 5) is situated to utilize the large available amounts of natural sunlight and ventilation. The asymmetrical v-shaped roof, oversized scupper and downspout dropping to a below-ground cistern express the building's relationship to the hydrologic cycle. The sound of rain can be heard on the roof and in the swirl of the downpipe. The deep overhang, louvers, high sun-facing wall and sloping roof express a careful fitting to the processes of light, shade, sun and wind in a building where the need for machines is minimized by a high level of embodied intelligence coalesced into simple forms.

As in the preceding worldviews, the story of Integral design also touches technology, energy and climate change. The Integral mind seeks responsive structures that adapt to changing conditions, and high-performance architecture manifests from the integration of active and passive systems in smart buildings, whether controlled manually or by automation. This technology-nature integration fits neatly with the Integral narrative of culture–nature integration that transcends the separations of the Postmodern where humans are doomed to a losing battle of protecting Nature from ourselves. The Modern sought to control the internal environment of buildings with active climate-control machines; the Postmodern, to reconnect buildings with natural cycles of free energy via passive design. The Integral connects both of these within the narrative of a hybrid and cohabited world. Such smart uses of technology to employ natural force for human purpose yields the highest energy performance in buildings at the lowest costs, placing 21st century architecture into a position where net-zero energy buildings—those that produce annually on-site as much energy as they consume—become widely within reach.

Integral level awareness is the first that can take in and practice the perspectives of the four quadrants outlined in Figure 1. The Integral story then involves addressing sustainable design as a solution to climate change, from these four perspectives simultaneously. The Integral designer seeks to:

- 1) Construct high-performance buildings that maximize efficiency of resource use and minimize pollution
- 2) Organize the built environment in patterns that fit the ecological contexts in which the work is situated
- 3) Give building occupants rich experiences of nature and natural forces that they might develop both “environmental delight” and a personal relationship with Nature, and
- 4) Manifest through architecture the meaning of our human cultural relationships with Nature, for example, by manifesting natural processes in buildings—such as when the hydrological cycle and the buildings' participation in it become made visible and expressed (see Figure 5).

It is in this merging of multiple design perspectives that take as their values carbon-performance, eco-contextual fitness, experiencing Nature, and manifesting meaning, that Integral level designers are currently writing a new story of architecture and which they believe is the key to solving the climate crisis by design.

In the Integral narrative, the climate crisis is not simply a crisis of *resources and pollution*, which of course it also is. In addition, the climate crisis is a crisis of *ecological and social systems*, which are dramatically impacted by the effects of climate change, and where the social systems are also cause in the matter. It is thirdly a crisis of *cultural meaning*, emanating from our myths and stories that we use to tell ourselves about Nature and our place in the universe, our worldview. Integralists recognize all the previous narratives and note that we need new stories of Nature. Finally, to the Integral worldview, the climate crisis is a crisis of *perception and consciousness*. We generally think the climate problem is a technical problem of the objective world, but unbelievably, many climate deniers, stuck in the dark side of the Traditional (pre-scientific awareness) story, still don't think it is a problem at all. US president Donald Trump, for example, argues that climate change is a hoax created by the Chinese for economic advantage. The Integral narrative tells the story of Nature and culture in the context of human development, with reference to developmental psychology. From the Integral prospect, solutions to the climate crisis are empowered as more people develop cognitively and morally to higher, deeper, more advanced stages, from Pre-Modern and Modern awareness to Postmodern consciousness, for example, where they are able to understand questions of greater complexity and care about a broader circle of life on the planet.

5.5 Transpersonal Worldview: Connect people to Nature as access to the unity of Spirit.

The preceding levels and worldviews can all be readily seen in contemporary design practice. The Transpersonal is seen more in individual designers and works of architecture. Its narrative is not so easily read. Within the *Transpersonal narrative of design*, Nature is the "abode of Spirit" manifesting in the world, as it also does in humans. From this story, designers can create environments that provide context and opportunities for people to experience merging with natural phenomena, the luminosity/love/light of the natural world, and the oneness of all life. From the Transpersonal prospect, designers can aspire to *light a blazing fire in the human Self with beauty*. From this prospect's narrative, we are connected to Nature when design structures the built and natural environment as a *continuous wholeness*.

Situated in a dense Arkansas forest, the Thorncrown Chapel (Fig 6) has no cultivated landscape. Structure and trees express the oneness of subject and object, inside and outside, person and place, Nature and spirit. Soaring walls, transparency, and the forest canopy all engender a sense of awe. Slender struts, branches, columns, and trunks catalyze an experience of peace and lightness that feels alive.

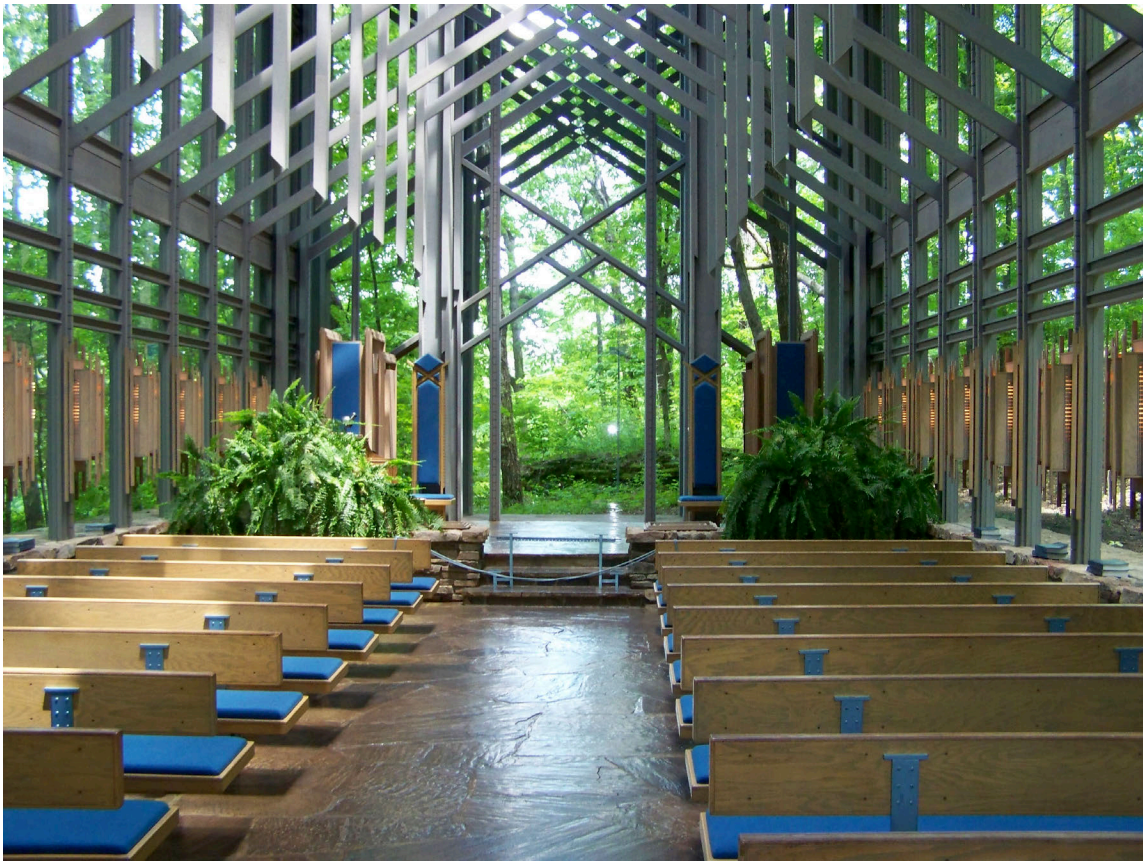


Figure 6: *Transpersonal: nature, beauty, unity, Thorncrown Chapel, Eureka Springs, Arkansas, E. Fay Jones (Holmes)*

The number of buildings that might be called manifestations of the Transpersonal narrative, or that might be known to induce high states of awareness, are relatively few. From a performance perspective (UR), they will not solve the climate crisis by design. There are however, in all cultures and in all eras, those rare spaces that become landmarks not for their stylistic expression or novelty of form but because of the impacts they have on the human spirit, often for the felt stillness they create in us. These moments are often attractors for the opening of human awareness in the ways not unlike how we find that peak experiences often occur in great natural places. For designers operating within an experience of the Transpersonal, we are connected to nature when design *creates the calmness conducive to our deepest and most authentic self*. In that authentic self is found Nature itself in grand scope and, simultaneously, our individual and collective ability to act in the service that broad Nature, including to solve the climate crisis.

6 CONCLUSION

Narratives from five different contemporary worldviews have been outlined, along with how these express in ideas of Nature and how they can positively express intentions to connect people to Nature via design. A few examples were given for each story from the many strategies and built works available as case studies. Each narrative was also explained in terms of its major potential for contributions to reducing building energy demand and therefore reducing associated greenhouse gases.

There are over two billion buildings on the planet today, more than in the sum total of all human constructions since the first hut. Buildings are the largest contributor to greenhouse gases, responsible in the US for 70% of electricity use. In many parts of the world, our electric lights are really mostly coal-burning lamps. Yet, countries like the US will in the next couple of decades build or rebuild most of its building stock. This is a momentous opportunity for anyone lucky enough to be involved in the design and building community today. Every building will count. It is clearer than ever that we stand now at the end of the fossil fuel age and the dawn of the solar age. Architects can keep building with fossil fuel era ideas—and fail at their challenge, or they can re-think the design of buildings and cities for the solar age. To do so will require not just better information or knowledge or even education about sustainable design. These already exist in abundance. What will be need by the building community is the power of stories to motivate the heart where mere knowledge delivery has failed repeatedly.

Designers will need the *workable side* of narratives from each of the worldviews. Each narrative has some aspects with workability and some that are unworkable. As an example of unworkability for the climate crisis, one can look at design education. In my school, like many design schools, the beginning design education is dominated by a Modern level story that says that all design can be reduced to set of fundamental visual principles, and that making space is an exercise in abstract composition. This is not a fact, but a narrative that many contemporary faculty operate within. There is a (very) partial truth there, but in leaving out people's experiences, patterns of social use, site and environmental context, construction systems, all non-visual ideas, and the matrix of energy flows that interface with buildings, there is no possibility for addressing the full range of fundamentals for the discipline. In the Modern story's rejection of history, we also have the doom of repeating its failures. Certainly, there is no preparation for making carbon-neutral buildings that use no fossil fuels or net-zero energy buildings that produce as much renewable energy as they consume. At the middle and upper levels, the education is dominated by a Postmodern story that, although it sees many perspectives and theories, also fundamentally rejects any integration of those same approaches. To make buildings that solve the climate crisis requires not only the integration of multiple progenitors of form—buildings are complex integrated occurrences—but also an essential integration of the methods that define the four perspectives outlined in Figure 1: experiences, behaviours, systems and meaning. Within the

context of a pluralist Postmodern narrative, integration and high-performance buildings are merely one of many possible elective approaches in a non-hierarchical, value-free menu. In my design school, work that is most expressive of the Integral narrative, becomes the subject of a single “integration semester.” Learning to design in ways that solve the climate crisis is to learn to think in ecologically complex terms. Developing such complex thought and solutions requires not a few weeks in a single semester but, as developmental research suggests, several years of concerted effort.

While each of the major narratives of design offers an explaining story of design and Nature that is hopeful, each also has its limiting framings, which can become pathological, as in the case of design education. Integral Theory suggests that the healthy development from one to another involves the higher, more complex, deeper level transcending the disasters of the lower, while also including its dignities and successes. From the Integral view, it becomes clear that both the climate problem and the solution that sustainably designed buildings offer are complex enough to require Integrally-informed cognition and values. As such, the building community will be well served by a healthy, well-articulated, Integral-level meaning-making narrative that transcends and includes the Traditional, Modern and Postmodern narratives of design and Nature—if we are collectively to solve the climate crisis by design.

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