A FUNDAMENTAL CHANGE IN ARCHITECTURAL EDUCATION

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This is a painful day. It is a painful thing that I am going to say to you, because it affects all of architecture, all of teaching about architecture - and it therefore affects the lives of almost every person in this room.

. . . but of course, I've never been to Turkey before, this is (my) first time. And, I feel a very warm kind of affectionate feeling for all of you that have been speaking and for all the effort you are making to struggle with the problem of architectural education.

So that's all a very pleasant thing. And you might wonder why I'm feeling painful, or why I'm feeling this is so difficult . . .

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. . . in idea, in attitude, in institutions, in order to reach a proper place, are so huge, and in order to make changes so big as that, some painful transformations will be needed. So you may find that even though I have such [an] affectionate [and] loving feeling for those of you that I have met and that I have heard speaking here, you may find me somehow aggressive - not because I want to be aggressive, but because if the future of architecture is going to be something worthwhile, that we can hope will make a serious contribution to this century. An enormous part of what was done and undertaken in the 20th century will have to be abandoned. Because, actually, to put it quite bluntly, totally wrong paths were taken and yet even I could see yesterday, listening to one person or another person, or somebody struggling with the problem of curriculum or the problem of ????, or the problem of design, in so many cases, deep down, I think probably we all have the same kind of aspirations, the same understanding of what is beautiful and what is not, and what is important and what is not. The ways of thinking, the ways of doing things, the daily attitudes that are carried forward, are completely contradictory to the deeper aspirations that one might have about architecture. So this is a terribly painful situation, and what's more painful is that in order to ake progress in it, we will have to confront one another. I don't mean "me" to confront "you", I mean on a daily basis you will need to confront one another. And I will speak about that in some detail.

The first concrete thing [is that] there are six billion people [on the] earth right now, there are, roughly about one million square miles of habitation (I mean, areas where people are living and working - not including agricultural [land]). The number of architects in the world [is], we are not exactly sure, but is something between 500,000 and one million. Now, if you just start with the most basic ????? and professional idea, you have to say "Look, those of us who are architects, we are very lucky, we have the opportunity to do what we love to do, and so, we have a responsibility somehow, to give to the earth what we have been taught to do." But, if you take a very simple calculation, every one of us essentially needs to feel responsible for an area of about one

square mile, everything in it, all of the morphology. I don't, of course, mean literally one actual place, but any way one square mile (maybe two because the numbers that I'm giving you aren't quite right) so that in your lifetime you should take care of only (again, I'm not trying to separate it out of it saying "Yeah, OK, ??? in charge of everything", I'm talking about moral responsibility and responsibility of attitude.) But, you are responsible for a square mile, so it means [that] every year, if you had lifetime of, let's say, 50 working years, you have to do all the construction (again, in terms of your moral responsibility) of an area of 200 x 300 meters. It's a lot to do in a year, and most of us, as architects, can't say that we are doing that every year, that'd just simply too much. Now again, I'm not speaking about being in charge of it, I'm just talking about the moral responsibility that comes from the idea that in our profession, our compassion and our concern is with the structure, the morphology of the built world. And, that simple arithmetic that I just explained to you shows that already the profession is not even organized in a way to deal with that sort of thing. The architectural schools are not organized to think about that sort of thing, occasionally one finds programs in architecture schools which have to do with areas of poverty, or areas of larger issues of housing or that sort of thing, but really its not part of a common attitude - normally one is content to deal with a building, a museum, a house, and things like this. In fact, even if you have a practice of 3, 4 or 5 architects then between them, the people in that practice, they have to do not two blocks by three blocks (6 [city] blocks) but 30 [city] blocks in a year. Do you see how fantastic that this is? We don't even have a way to think about how to do that. And yet, just starting from the very simple facts about how many people there are on earth and how much area is covered by the built environment, you [can] see where we get to very quickly. Well, the problem gets worse than that. It becomes more complicated because at the other extreme from this very large scale is the problem of the very small scale.

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And, for reasons which I will go into a little bit later, when you take seriously the structure of a building and you say "How can this building be made a good building?", it's not really possible to make a good building unless the level of attention to the building is down at the scale of centimeters. When you carve a piece of wood or form a piece of concrete or shape and glaze a tile, then it is only when that level of detail is carried out, reaches down to that scale, that the larger building has a possibility of becoming something. Of copurse that poses tremendous problems because (I mean, again, for our conference here) you can't take stuff like that seriously unless #1- there actually are craftsmen #2- that you have the opportunity to learn these kinds of things #3- the authorities in the architecture schools will allow you to do this, etc etc, #4 - you have the courage to get involved in actual building and not only just making drawings - so these are kind of complicated questions which we will discuss. But, at the moment, all I want to draw your attention to is: on the one hand, we have a huge moral scope of the enormous part of the earth's surface that each one of us in this profession, in a way, should and must have some moral responsibility for; and yet, on the other hand, (because you might say "OK, then you might just make very abstract things . . .) in order to do "good" work, you have to be working down at the scale of centimeters to make buildings tht are beautiful. So, this is a phenomenal stretch, and

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. . . not consciously by those individuals. But, if you look at it in terms of a larger social history, really there was an intent to justify the miserable modes of production that were introduced in the 20th century and somehow validate them to make people [that] they are OK. But, of course, they are not. But unfortunately, our profession was completely taken in by this, so for 50 years (more or less) we have been acting as though they are right. And really it is just a sales gimmick from companies, banks, developers and social and economic conditions that made it necessary to do (what shall I say?) very hasty, very sketchy, very abstract kind of structures, just in order to somehow get in between those two ends of this spectrum. So, the program that I believe is inevitable for serious future architecture that we could believe in, is one that both deals with the very large scale of things, the huge ??? stuff that is being built on earth, and also deals with it in its very loving and intense way, dealing with every centimeter, through construction, through craft and so forth. Of course including, by all means computers and all kinds of incredible tools which come to our help to do those things - I'm not implying [that] it should be some sort of ancient craft, but I am implying that it should be personal.

There's another aspect . . . you really don't have to think about this intellectually, you have to think that this whole huge structure, this built environment . . . One of the most ??? ??? is thinking about "what is this problem?" I mean, when you have the natural world with its natural laws, you have thousands of organisms and the organisms are growing and within each organism every cell is adapted in just that way that I was talking about the one centimeter of brick or tile or wood or steel, but you'll find that the level of adaptation of an organism goes down to a very, very tiny level and if a human being, for example, had suddenly imposed upon the tradition that all the cells had to be identical, the thing would just be absurd- I mean, it would fall apart. You can't have an organism like that because organisms don't work that way. There aren't that many different cell types in every human being, only about 250, but they are all adapted to exactly where they are so each one is different and fits according to where it is in my finger, my nail, my arm so forth . . . just as is true, of course, of more traditional building. You [in Turkey] have this same sort of traditional building - it is the means of production of a kind where everything could be adapted perfectly to just its particular place and its particular people, and so forth.

But there is a more complicated problem still than what I just mentioned - that one knows, pretty much, that all that adaptation can't be any good unless it is done by the people who live there and work there. I mean, one of the reasons why traditional environments are so positive is because the people who live there and work there had considerable power. Not very big power, but just enough power to make each little piece the way they wanted it to be, and the way they knew that it had to be: the step, the door, the window, the roof, the overhang, the column, the railing, etc - all made by peopole acting for themselves in their own interest and just making every little piece perfect. Our relationship to the population of human beings on the earth, I mean, our relationship as a profession (the 20th century view of the profession of architecture) is totally at odds with that kind of idea. You know, "the client", "the user" and stuff like that . . . and they want to give the user 5 minutes of "Is this what you want? Oh, thank you . . ." Or 5 minutes more so that

you can have "a discussion" (hah) - that's silly, that's absurd. You can't create a human ??? like that, and yet if you read the social literature about architecture and what people have said about architecture, of course it is always mentioned that it is a social art and it has to do with human beings, it has to do with the welfare and adequate day-to-day living of human beings, and I think people believe that, I don't think [that] it is cynical. I don't mean to imply that somehow there is a cynical attitude in the profession, what I am saying is that the institutions of the profession are not saying how to make these things possible. So when somebody says "Well, I'm actually involving the users in a project somehow . . ." we feel grateful because they have taken a small step in that direction and will lead perhaps to some interesting results. But that is quite a long way from having the six billion people on earth taking part in the construction of the world.

Now, that's just the background - I believe I had to say something like this just so you understand my feelings, anyway, of some kind of vision of what the profession might be trying to do. And what might then raise the question "How could we, as a profession, attempt such things? What kind of institutions could we have that might achieve such things?" And then, of course, "How would we teach?" I think [that] you can tell from what I'm saying that I do have one very strong prejudice - and that is: of course the program of instruction in architecture school should not be guided by the current form of the professional activity that exists outside the school because at the time that one is thinking through how to do these things, and how to move and what a difference to make in progress, it's ??? to get helpful to have that, in a way, under control, or the idea that these students have to fit the profession as it is today. This is the first serious point of pain because students from decade to decade they change sometimes. In the [19]60's students were very idealistic, in the [19]80's they were very materialistic - I'm talking about in California, I don't know how it was here [in Turkey] - then in the [19]90's it got a little bit different, and now it's different again. Certainly there were times when students said "Oh, I have to have a job when I leave this place, so please prepare me to do a job so that I can earn money when I get out from school." So it's a ??? complicated to say "don't be guided too much by the structure of the profession today". This is a hairy, hairy problem, but I believe a necessary one.

Anyway, this is a sort of background of the situation as I see it. Now, I'm going to take a slightly . . . I'm going to stop for the moment and take a major topic. First I want to introduce the topic, I will tell you a funny story: I was on an accreditation board for the Department of Architecture at Rice University in Houston, in Texas, about 20 years ago. I was one of those horrible people who come around and say "Your school is/isn't adequate to teach architecture." There were about five or six of us and we went there for three days and we talked to lots of students, we talked to faculty, you know what I'm talking about, all of you have been through these things. I only did one thing, I thought "OK, I'm going to ask the students the following questions". I met a lot of students and to every student I met Is aid "Do you know the difference between a good building and a bad one?" Everybody said "No" - every single student. I went on like that for three days. When it came time for the report, our committee met, and I said "Well, these students don't know the difference between a good building and a bad one, so of course we can't give them accreditation." My colleagues on the committee said "Yes, but we can't just not give them accreditation. That's too extreme, Alexander." I said,

"Yes, but seriously, if they don't know, [then] what is it that we are accrediting? Not only do they not know, but they also have professors who are not giving them this information. So they don't know, and they aren't even being taught by the professors how to know that." So I said I was sorry, I couldn't approve of that. But anyway, my colleagues gave the school accreditation. And I had the "novelty refusal". The only practical thing my comment translated into was a statement at the bottom of the report which said "you must try to do better".

Anyway, there has been some discussion yesterday about criteria. So, when you are teaching, what is the criteria [that] you use? How do you help the student understand "is this thing better than this thing?" or is it worse? But what about this thing? Is it better or worse? The real tragedy, in my opinion, that I have experienced very frequently at the University of California where I have taught for more or less 40 years, is that the way of thinking about architecture which existed in the second half of the 20th century essentially refuses to ask that question. That is, absolutely because the question is so difficult, what happens is you hear all of these incredible excuses of pluralism, and everybody should do what they want, and its our job as the teacher to encourage whatever the direction is the student wants to take and "nobody is right", "everybody is right", you can do whatever you want, etc, etc. Again, I am quite sure that you have experienced that sort of thing. You may not have called it quite just what I have called it, but actually it is the reality not only of teaching circumstances which I will speak about, but also at faculty discussion. The single reason that faculty discussion about how to improve the curriculum was most inhibited for the last 40 years, adversely, (I'm guessing that it is the same in other universities, I don't think that it is a peculiarity of mine) was that the faculty can not look each other in the eye and dicuss that question because it is too frightening and too painful. And so, instead, one kind of runs around it. Actually it is kind of frightening, you know, because each of us is extremely vulnerable, especially [because] we create things. So, if you create something, to have an atmosphere of "is this thing OK or not OK?" or "how about this thing compared with that thing that you have made or that person has made?" is so hard to have to face the question "is one of these things really not so good? and another another one is really better?" So, faculty don't like to discuss that. It is much easier to say "Look, each person has the right to teach what they want to teach" It is a humanitarian wish to avoid that pain. It is the same thing in the class, because when you have your students come up with their various projects, of course sometimes professors like to be nasty to students, but most of the time actually they don't. You don't want to be constantly fighting with the students, especially when you don't know what to tell them. So to avoid the question, there is all kinds of incredible "claptrap" of . . . some of the kinds of language that has arisen in the context of Post-Modernism is kind of an incredible word wet-suit???? that means nothing but somehow gets through these awkward moments and so one feels one is talking about something. So everybody can feel, yes they are still professors and they are still students and we all know, more or less, what we're talking about. But, how do you know what to talk about if you don't address that question, as an architect?

It is a little bit more obvious when, as I am, you actually make the things that you design. Because, there is no getting away from it. I mean, while you are making it, you can tell whether it is beautiful or not. It is very difficult to make beautiful things . . . you can't really avoid it. But anyway, the main problem is not that. The main problem is

that the discipline of architecture that has been created in let's say the last 70 years of the 20th century simply does not have a way of dealing with this question. Yesterday there was some discussion about theory. I couldn't hear all of it (I am a little hard of hearing and occasionally I missed some important points), but, the impression I had was that the thing that was being called theory wasn't really theory. That is, the thing that was being called theory was a sort of programmatic declaration of some kind, like 'this is how we should do our architecture', 'these are the kind of things we are going to do', or 'these are the kind of steps we are going to take.' Of course, this is not theory in any way - a theory has to tell you something, basically it has to enable you to make successful predictions. I'm not speaking now about science, even if I say 'OK, in this realm where we are, where we are trying to make beautiful things, or adequate things, or living things. Anything that is useful enough or that could really be called a theory will essentially tell us something about that problem, and actually enable us to predict how to do better. This is a little different from the theories which occur in physics or biology where they are purely concerned with a certain sort of fact, because here there is a fact which enters in and is fundamental, and that is: whether or not a certain kind of structure is going to have living attributes, is it going to be full of life? Is it going to be beautiful? Is it going to be forward??? in some way? One wants predictions like that, one wants information that will enable us to achieve that, a little bit more, a little bit more, a little bit more . . .

Let me give you a very simple example of something that is almost naive you might say, but it is actually theory like that, in a very practical sense (it may seem funny to you because I am calling it theory): when you build a building, it doesn't matter if it is a masonry building or a wood frame building or a steel building, the following thing will happen: if you enter into the various spaces while they are still being formed you will see something about how the windows ought to be. Of course, you are standing there, and the walls are already existing or partially existing or something like that, and you can begin to judge what are the right ways to make the windows in that room. The theory simply says that 95 times out of 100 whatever was on the drawings WILL NOT be the thing that you experienced when you are standing in that half-finished room and know where the windows ought to be. Now, that's an incredible piece of information if true. Of course you don't necessarily believe me, but I am telling you anyway that it is true. Because, think about what it means. That's theory because as a piece of information it tells us something about the process of making a successful and more living or more whole environment. But of course this particular piece of information has kind of a delicate twist, because under normal circumstances of standard architectural contracts you are not in a position to affect the building at that point. You can if you want to spend a lot of money on the contractor's change orders but no client would allow you to do that, and anyway it is stupid to do it, so, the whole set-up between you make the drawings, prepare the working drawings, and then the contractor builds the drawings is already wrong just because of this one piece of information which I have just given you. Of course, one could give 50 pieces of information like this . . .

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. . . the typical kind of thing that a person would draw, very many students probably you have taught, wouldn't even be aware that such a

small trivial problem has a significant meaning, even to make it worth answering. OK, its just a wall 56 cm high, so students say 'well, what do you mean exactly?' 'What are we supposed to be doing here?' Let's say they make one and I say, 'do you like it?' (They answer) 'well, no not much.' A student might say, 'it's OK'. So I say 'I don't really want to stop this thing' . . . I used to do these projects, very short projects, I would give a project like that, maybe for a week, and then another one the next week and so on and so on . . . sometimes it would be a little tiny thing and sometimes quite a big thing, so I would say 'I'm not going to stop this project until you can ttell me that you really really really like the wall that you have made. So, that helps some students, and they say 'Oh, you were talking about that, I see, OK, well then I will have to do it a little differently' and then they (the students) make something. Sometimes they make something graceful, sometimes they make something, instead of looking over their shoulder at the architectural profession, and they think it is kind of cute or something, and I say 'Well, are you really satisfied with that?'

Anyway, gradually I will introduce to them the following idea which will seem perhaps somewhat fantastic to some of you, not to all I hope. I say 'Look, here are these two walls, these are blue, these are red, now I want you to tell me, look at these two walls, which one is a better picture of your own soul? They say 'What do you mean? You can't be serious? What are you talking about?' I say, 'No, I'm serious, it's not a funny question, and if you think it is stupid, it doesn't matter, just answer the question anyway.' It doesn't matter whether you believe in the soulf in your life, it is not a religious exercise. It's just to do with architecture. (The students say) 'Well, if you force me to answer that question, then I have to say this one is a bit better.' What's more to the point, even though the question has to do with that student and that student's feelings, the extraordinary thing is that, more or less, all the students will agree.

So, what sounds like more of this kind of pluralistic thing of 'you want to make it look like your soul and yours like your soul, and your soul and so forth . . .' Actually it turns out when people try to do that what they do is to make things that are quite universal in their depth of beauty that they reach. By the way, by passing in this direction, even with a very inexperienced student within a matter of weeks or months get them to make objects that are extraordinarily profound. Even, they may not have any training as artists, but just the impulse of that question teaches them.

Now, the point is, and I have to come back to this because of course I don't have time here to say everything that I would like to say to you because coffee is coming up at some point, but anyway, this particular experiment that I just described is one of a dozen similar kinds of experiments that can be done to distinguish between a more living structure and a not so living structure. So, the question of what has more life and what has less life is invaluable to empirical investigation and that the results, even though what I just told you sounds a bit far-out (you might think 'Oh god, he's been living in California too long or something like that), but actually it pierces right to the heart of the question of what is the structure. And so, issues which are of an ecological nature or issues which are of a social nature or issues even which are of a structural nature (that is, having to do wwith engineering structure) are all amenable to an investigation by the general approach of trying to find out whether a certain thing is more living or less

living, has a more living structure or less living structure. And of course it is also more of the scale?????, I mean I gave the example of the little wall, I could have given an example of something smaller, or I could give the example of a big civic complex occupying three blocks, or something bigger than that, and applied the same techniques of investigation for those things or the relationship between the buildings and the land and the spaces between them.

Now, we will not be able to have a profession which solves the strange problems that we have experienced in the last century unless we have a genuinely cumulative way of arriving at knowledge about what makes buildings work. Some of you know that many years ago I published a thing called 'Pattern Language' where, in a way, there was some investigation of this, it relates somewhat to what I have been telling you just now, because if one looks back at those things and say 'well, what actually are those patterns?'
50.What they are are configurations which predictably are likely, not certain, are likely to increase the 'living-ness' of the structure where they are put in. Of course, not always, and certainly not always even relevant. But anyway, some progress was made there. Now, there's an equal???? level of structure that can be pulled out where you can also make predictions which are much more geometrical kinds of properties and I was just thinking when I was talking about the way a building sits in the land and the space between the buildings, one of the most fundamental issues that will always be relevant to determine whether or not something has a living structure is how positive the space is. That means, that every little bit of space is positive and that every entity is positive - not very easy to do - one of the reasons I have been so much helped by 15th century Turkish carpets is the fact that at that time the Sufis and other people who wove them were very very conscious of that thing and did it to an unbelievable level of mastery. So, in a way, you can learn a lot about positive spacec is just by looking at one of those carpets. But of course you can also learn it from looking at the plan of Rome or Istanbul or you can find it in thousands of ways - it is just that we, in our period have actually become conspicuously bad at doing this. I mean, this is a nice building, is the space just outside the front of the building a positive space? Of course not. We jsut take it for granted, we don't think about it anymore. And, it is not just outside space which has to be positive, but every little bit of space everywhere.

So anyway, I am not going to say anything about that. You can write about it, you can understand it in quite an amount of detail. Again, you can make predictions because you say 'If I do introduce this kind of positive space into a project again and again and again', it will move towards this living structure and it will tend to have the property that someone will almost say 'Yes that is a very good picture of my soul.' And I don't use this frivolously, I know that it is a strange phrase, I apologize, it is almost embarrassing, but really one can't avoid it, it's just the way it is.

How am I doing for time? Do you know what time is it? Quarter past ten? When do I have to stop? I have to stop now, don't I?

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. . . www.patternlanguage.com . . . you will find it there, it is changing all the time, it is already fairly elaborate, but that's the best thing to do - go there and have a look around.

QUESTIONS:

Q: Could you explain a little bit more about your living structures notion? You have written about this, but you didn't really say much . . . could you explain . . .

CA: Yes, I will say more about it because it is very difficult to demonstrate without real examples. Yesterday I had an interesting discussion with Prof. XXX from Lisbon and he was talking to me about his teaching philosophy at his university and I said 'Well, you can't get those kind of ideas across to without actually making real things, real projects of some sort and testing them out all the time because to listen to philosophy without actual examples is hopeless.' And he said 'Well, that's not my job, I'm not allowed to do that.' So I said 'well, anyway you just have to tell the authorities that this is philosophy and you have to make the students do things.'

Now, let's take a very simple case. Suppose we are interested in a room in some design project and for some reason this particular room is interesting enough so we really want to make it good. And I am not talking whether it is in my office or at the university, it doesn't make any difference. (By the way, I forgot to mention that, I mean, I could not imagine how to teach without using real projects all the time, and involving the students in the real projects. It is the only way that I have taught for 40 years. I never . . .)

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. . . drawings we very rarely make ??? in the way of drawings. The first thing with this room would be, let's say, to make some models out of paper, not even cardboard, just paper. No more than that, really. And we look inside and . . . I said paper rather than cardboard because we are constantly playing with a pair of scissors and tape and chewing gum and stuff like that . . . I'm looking inside this room to see does it have the feeling of, let's say it is a meeting room of some kind, so we look into this thing and we start to judge whether or not it has the qualities that I am speaking about.

Now, what I want to emphasize, you will understand in a moment (it appears as though I am not directly answering your question, but I really am). Immediately, very very quickly, you say 'Well, I have to check and see, we have to make it maybe a inch longer just this one wall, right. It has to be a little bit longer, uh, the fall of the ceiling is not communicating very correctly with the room, and the feeling created by that ceiling is not positive in this way.'

And remember, all the time, I don't use pretentious language about the soul every day when I am in the office, but actually everybody with whom we are working together we all know that is the question to answer.

So, we are looking until the inside of that room starts to have such a positive quality. And the first thing which is very unusual it took probably, let's say, 10 or 15 steps with the scissors, gradually, in just a t that scale, to arrive at something that has a little more value, much more than one can achieve on a drawing by the way, because on a drawing you can't even see those qualities that I am talking about, but in the small paper model you can.

So then we say 'OK, fine, it is time to make a slightly bigger model.' So we a model which is, say, this size (hand gesture of about one meter by one meter) and again we stop a say 'OK, now this time we really need to understand how the wall, the windows, the whatever, to get a more detailed feeling of things, furnishings if there are any, just what is this room doing? How is it put together?' In an extreme case, if it is a very important room, we will at some point get some 2x4s and essentially make a mock-up of the room at full size using string, cardboard, canvas, stuff like that, trying to judge the qualities of that room and how deeply it succeeds in having that life itself.

Now, what I am trying to illustrate here, I know I am not actually answering directly what EXACTLY is 'living structure', but the thing that I am illustrating is: whatever it is, you can only get to it by a long, serious of successful approximations. It is in the nature of that structure that it can only be arrived at empirically.

Q: I'm not an architecture (sic), but I would like to find out what is the difference between expression, to express something, and to construct something. It looks like, for example, for expression, a line on an empty paper is enough, just a line. Or a car crashed that wall and the wall is still standing. I think the soul must be involved only when you are constructing it, that's the way I understood it.

CA: That's very true. May I tell a story? (Please do!) Somebody better stop me because otherwise I will go on forever, so Nur, please don't feel afraid to say 'Chris, stop!'
85.
This is a story of XXXX XXXX that I knew, he worked for me in Japan, he was 80 years old and he was a master of making something that in Japan is called 'shikkui' (spelling?) which is a very, very highly polished beautiful form of plaster that is used on traditional buildings. And he was one of the last living craftsman able to make this stuff in the old way. He made a lot of plaster for me on a big project that I built there.

His son was 60 and at one point I brought them to our workshop in Tokyo and I said 'Look, could you show me some examples of how you do this and what you do?' And so, he made a panel about that big (hand gesture one meter by one meter) of black chicory and his son made a panel of green chicory because I also needed some green plasterwork so I just wanted to see . . . And, you know, the way they make this thing is that have a series of trowels, about 10 trowels, with each one's blade thinner and thinner and thinner and the last one is like a . . ., it's so flexible that it is almost like a razor blade.

And so, gradually they trowel on this material. He took about an hour to do this small surface, and then I said . . .

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Q: Firstly I would like to compliment you, Professor, because it was a remarkable talk. Secondly, I would like to make (sic) a question about the models, not the three dimensional models but the 'wall models'. How can we learn from them? In my town, in Lisbon, we have the experience that those builders they learn from, and they can build very beautiful things and beautiful urban environments, if they learn from environments built by architects. So architects do not need to build everything, do

not need to draw everything. The downtown of Lisbon was built by architects and until (sic: probably wants to say 'since'?) the 1930s in Lisbon, that role model continues to live and to generate beautiful urban environments without the intervention of any kind of architect, only those guys. So, I would like your opinion on this. That's the first question.

The second question is about this relation with students, about learning to build and construct a livable thing. You always talk about this dialogue, and the question of the soul, to build a thing where you recognize yourself, where your soul is, but don't we also learn from the relation, the experience with old buildings, having them as models?

CA: Ah, yes, of course, we do that, but . . . I am going to talk about the second question and then the first one.

You see, we have been passing through a period where our profession as a whole has been very, very nervous about old buildings. And, in a way, its appropriate (???) because just to copy old buildings or be inspired by old buildings and so on, it does not make much sense because technology is so different, the procedure is so different, the kind of building is so different. So, you can't just say 'Well . . .' Of course you can say that we should be inspired by old buildings, that's one thing. And certainly I always would like to say I am trying to make something as good as those people made. So, I look at that stuff a lot. But I don't look at it with the idea that 'I am going to copy that thing.' Because actually not only is it not really practical, but you have to invent completely different techniques, and also because of the atmosphere in the architectural community it is kind of an embarrassment, you know. There still is this dialogue going on: some of the very formal looking architects, you know, they are looking to the next decade or something, they get very uncomfortable if you start saying 'Well, actually you should be looking at the buildings from the past.' Personally, what I told you today is not looking ten years ahead, it is looking 100 years ahead. I mean, I'm talking about a completely different human society, biological society, and therefore it is necessary to have internal criteria which do not depend on history. It is not because I have disrespect for history, I have a huge respect for it. But, you can't use that as a main source. That's my answer there. The source has to be internal. The people who built those buildings, they got it from the same kind of stuff I am talking about. Of course, they also got it from their history and tradition.

The other question, about the builders and the architects in Lisbon and so on, I got so confused while I was talking that I didn't actually just say it:

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As a builder, as a . . . you can not take responsibility for making buildings unless you know hoe to make buildings. You don't learn how to make buildings from playing around on pieces of tracing paper. I mean, you just don't, it is silly, there is no way, and yet, this is the most absurd contradiction of all: that we have a whole profession devoted to the making of buildings but actually you don't learn how to make buildings. I mean, you learn nothing about it. My students, they learn about concrete pouring, they learn to plane pieces of wood, they learn all these things. It is not because they are going to become 'lowly

laborers' or something, it is just that they want to make real buildings so therefore of course they want to learn these things. And then they can also tell other people how to do them. You can't tell somebody how to make that a wall, if you don't know how to make the wall. And the fact that you have learned something in architecture school which enabled you to draw a cross-section at half-inch scale or something, or the way a footing of a wall works, I mean, my God, is that enough to tell you that you can tell someone how to make a wall?

I mean, it is silly. And of course in the 20th century . . .

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(We have one more question . . .)

Q: Thank you for your very interesting lecture. I am Mrs. XXXX from Uludag University. My question is related to your expression about details. You talked about the intention of details which I really agree with. As you know, a ???? psychologist said that 'the whole is more than the sum of the details, or the parts'. How would you place your idea of details within this psychology is my first question. And secondly, how have you developed the idea of pattern language? I mean, more than 30 years have passed since you have first developed this idea. In these 30 years, is there any other difference in your idea about pattern language other than the 'sequence part' which you mentioned.

CA: Yes, because from a practical point of view please understand that we are only just in the beginning of it. We have only been working on this Internet site for about a year, but our intention is to create a network of builders, architects, crafts people, and lay people who can successfully work together. Of course, we are only beginning at the moment mainly in the United States, hoping that the same kind of thing can be repeated in other countries.

The people who ??? try and use the sequences that we are providing them, then, they need some kind of support. They may not need support in order to make a design, but certainly they need support when it comes to 'How are we going to implement that building? What kind of people will help us to do it? What kind of people will help us from a professional point of view - engineers, architects? What kind of people will enter into the construction process, so that we can trust that they will work from what we have done?' For example, this is a very fascinating innovation which we are just putting up right now, that the construction process itself is not based on working drawings but is itself based on generative processes so if a client or a user makes, using one of those sequences, has a layout of a house and says 'here's how I want my house', then this process will allow us to give that sketch, which is really not more than a sketch, to a builder or an architect-builder who has the generative process that will tell them how they can build from the sketch all the way through the complete construction, without working drawings in between, which is a major innovation, a very, very important one. There are other important contractual innovations.

So, we are trying to create a whole network of these sort of tools, and of the people who know how to use these tools. Does that answer what you are asking?

It is a huge amount of work. I mean, I don't think that it will be finished, ever. If we are successful, it will go on and on and I hope also that it is capable of becoming a kind of model for how architecture should be conducted, and how architecture education should be conducted. I think now maybe it is time for me to stop.

(Maybe one last question?)

Q: (from Necdet Teymur) A Zen master, this is a well-known story, a Zen master was approached by a student and he asked 'Master, master, what is the meaning of life?' The master did not answer and the student asked again 'Master, master, what is the meaning of life?' The master walked away.

Thank you all very much. Thank you for your time.