COPPER ARCHITECTURE FORUM

Herzlich Willkommen zur neuen Ausgabe von Copper Architecture Forum

Manchmal hört man, dass die Baubranche ein eher schwerfälliger und konservativer Wirtschaftszweig ist, der im Vergleich zu einigen anderen Branchen nur langsam neue Produkte und Technologien entwickelt. Dies trifft allerdings nicht beim Einsatz von Metall in der Architektur zu. In diesem Bereich ist eine konstante und schnelle Entwicklung zu beobachten. Auch wenn Kupfer eines unserer ältesten Baumaterialien ist, sehen wir laufend Beispiele neuer Methoden, das Material aufzubereiten und verschiedene einzigartige Effekte mit Kupfer zu schaffen, die dem Gebäude ein markantes Äußeres verleihen. Dieser neue Denkansatz fiel insbesondere für Fassadenmaterialien deutlich beim Seminar Metall 2010 ins Auge, das im letzten Frühling im südschwedischen Malmö stattfand. Architekten wurden zur Teilnahme an vielen anregenden Projekten und Lösungen eingeladen, deren Schwerpunkt auf Metallen lag. Unter den Rednern waren auch Ryue Nishizzaawa, Vorjahresgewinner des Pritzker-Preises, sowie Bruce Nicol of Front, einer der größten Fassadenspezialisten unserer Zeit. Natürlich war Copper Architecture Forum zur Stelle und wird in einem separaten Artikel einen Bericht über diese Veranstaltung und Interviews veröffentlichen.

Wir werden auch von dem im Bau befindlichen Helsinki Music Centers und seiner sehr speziellen grünspanfarbenen Kupferfassade berichten.

Die Architekten bei KAAMA entschieden sich ihrerseits dafür, mit verschiedenen Oxidoberflächen der Fassadenplatten zu arbeiten, als sie das neue Sport-und Freizeitgebäude Zabehlice außerhalb von Prag entwarfen.

Wie üblich mischen und betrachten wir große und kleine Projekte aus verschiedenen europäischen Ländern und in dieser Ausgabe lernen Sie außerdem eine weit entfernte Besonderheit kennen: Ein wunderschönes neues Kupfergebäude in China.

Ich hoffe, das wir Ihr Interesse wecken und Anregung bieten, und denken Sie stets daran: alle Anmerkungen und Beiträge oder Vorschläge für neue anregende Projekte, die wir in unserem Magazin vorstellen können, sind jederzeit willkommen!

Lennart Engström
Hrsg.

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Copper Architecture Forum, oktober 2010

Copper Architecture Forum gehört mit zur laufenden Kampagne "European Copper In Architecture Campaign" und erscheint halbjährlich mit einer Auflage von 25.200 Exemplaren.

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european copper in architecture campaign


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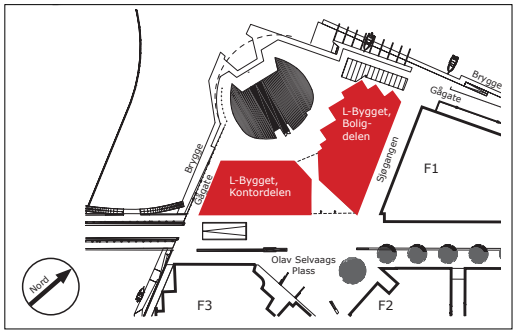
INHALT

Moduliertes kupfer

Das neue L-Gebäude – ein Entwurf der Architekten Schmidt, Hammer und Lassen – spielt bei der Gestaltung des kommunalen Charakters des Bezirks Tjuvholmen in Oslo eine Schlüsselrolle. Insbesondere seine überzeugend modulierten Kupferfassaden bilden einen wichtigen Teil bei der architektonischen Umrahmung des Olav-Selvaag-Platzes.

Der Bebauungsplan für Tjuvholmen entspricht der Struktur und dem Bild einer mittelalterlichen Stadt mit verschlungenen Straßen und engen Passagen, die im Gegensatz zu weiten Plätzen stehen. Tatsächlich haben die Straßenfronten einer mittelalterlichen Stadt, mit ihren aneinandergereihten Bauten, Fassadenelementen, die hervorspringen und zurückgesetzt sind, und das alles bei wie zufällig angeordneten und variierenden Dachhöhen, zur Gestaltung des L-Gebäudes inspiriert.

Wie der Name schon sagt, besteht die geplante Form des L-Gebäudes aus zwei im Winkel angeordneten Blöcken, einem für Wohnraum, einem anderen für Büroräume, und zwar derart gestaltet, dass sie sich unterscheiden aber genauso ergänzen. Der achtstöckige Büroblock ist zum Olav-Selvaags-Platz und zum Kanal hin gewandt und bietet eine Gesamtgrundfläche von ca. 7530m^2, wohingegen der Wohnbereich aus 13 Etagen mit 78 Wohnungen von drei verschiedenen Typen zum Sjøgangen dem Wasser zugewandt ist. Gegenüber vom Standort, im Hof des L-Gebäudes, befindet sich das ovale, von Torp Architects entworfene Gebäude. Der für Wohnraum vorgesehene Gebäudeteil ist als geschlossener Raum gestaltet, bei dem Terrassen oder Erkerfenster aus der Fassade hervorspringen. Terrassen, Erkerfenster und Fassaden haben alle eine helle, verputzte Oberfläche.



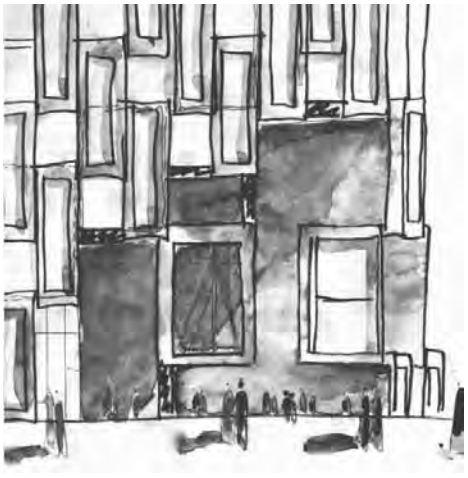
Projekt: Tjuvholmen Oslo Norway
Architekten: Schmidt, Hammer and Lassen Architects. http://shl.dk

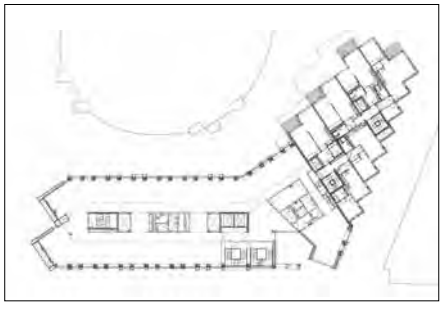
LEICHT OXIDIERTE KUPFEROBERFLÄCHE

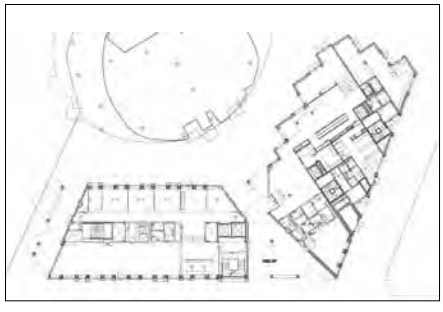
Im Gegensatz dazu wird für die Fassaden des Bürogebäudes großflächig vorpatiniertes hellbraunes Kupfer verwendet. Die Kupferverkleidung setzt auf solide dreidimensionale modulierte Formen und ist auf ein Strukturrahmensystem montiert. Dadurch entstehen in Bezug auf die einheitliche Glasfläche drei verschiedene Erkertiefen. Die Proportionen der Fensterrahmen und –öffnungen variieren je nach unterschiedlicher Funktion der Räume dahinter und nach Tageslichtbedarf. Zum Beispiel entsprechen die Rahmen der Büros und Arbeitsbereiche einem Büromodul von 2400mm. Bestimmte Räume, wie z. B. Sitzungszimmer, befinden sich an den Stirnseiten zum Kanal hin und neben dem Eingang, wo auch die Haupttreppe sichtbar ist.

Zum Olav-Selvaags-Platz hin befindet sich ein trichterförmiger Eingang, der aus dem Gebäude heraus und fünf Etagen hinauf führt. Das ovale Gebäude ist vom Olav-Selvaags-Platz aus über ein Vestibül – das einen Knotenpunkt zwischen den beiden Gebäuden darstellt - über diesen Haupteingang zugänglich. Das Erdgeschoss ist sowohl am Eingang als auch im Innenbereich mit einer Bodenabdeckung aus Granit versehen, die zum Pflaster vom Olav-Selvaags-Platz passt und somit einen nahtlosen Übergang zwischen Innen- und Außenbereich schafft.

Im Erdgeschoss des Flügels zum Olav-Selvaags-Platz befindet sich ein Empfangsbereich für das Bürogebäude und die Konferenzräume. Die restlichen Etagen sind Büroräume. Jede Etage hat eine Gesamtgrundfläche von durchschnittlich 900m^{2,} wobei die Arbeitsplätze entlang der Fassaden liegen und innen über einen Kernbereich mit Serviceeinrichtungen verfügen. Im Flügel zum Sjøgangen und zum Wasser hin liegt ein Café zu ebener Erde mit Sitzplätzen im Außenbereich, die den Hof beleben.







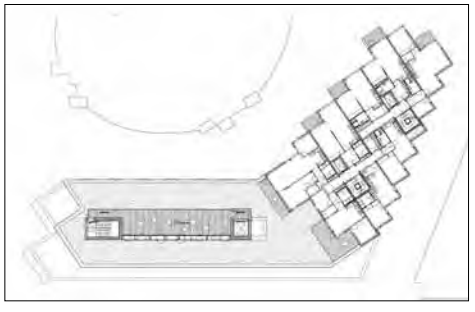


Foto: Hannele Kuusisto

FEIER DER KUNSTFERTIGKEIT DES KUPFERS

Durch Ersetzen des misslungenen verzinkten Daches auf diesem unverwechselbaren Gebäude erlangte das Gebäudedesign durch wunderschön verziertes Kupfer eine neue Dimension.

An einer Felsenböschung, über dem Meeresufer in Rauma an der Westküste Finnlands gelegen, wurde das Haus vom ortsansässigen Architekten Jukka Koivula entworfen und vor ca. 20 Jahren gebaut. Dieses mehrstöckige Haus passt sich an die natürlichen Konturen des Geländes an, wobei sein eigentümliches Design, das von traditionellen und modernen Quellen lebt – verschiedene Formen präsentiert, die sowohl vom Meer als auch vom Land aus zu sehen sind.

Kupfer überzeugte die Eigentümer

Ursprünglich hatte das Haus ein galvanisiertes Zinndach, das zunehmend in regelmäßigen Abständen gewartet werden musste, um Probleme wie etwa das Abplatzen des grünen Dachanstrichs zu lösen. Deshalb entschied man sich dafür, das gesamte Dach zu ersetzen. Durch den Standort an der Küste werden die externen Materialien aufgrund der wechselnden Wetterbedingungen extremen Belastungen ausgesetzt. Gemäß dem Gebäudeeigentümer Raimo Hilakari war Kupfer die einzig vernünftige Lösung, die ihm blieb. Dessen Beständigkeit und Formbarkeit waren gerade im Hinblick auf das Material für die vielen verschiedenen Dachformen wichtige Aspekte für die Entscheidung. Hinzu kommt, dass der Farbton des Kupfers und seine natürliche Patinierung im Laufe der Zeit ganz natürlich zur gelblichen Steinoberfläche des Hauses passen. Ein neues Kupferdach wurde im letzten Jahr montiert und die gesamte sonstige Blechverkleidung durch Kupfer ersetzt.

Text von Hannele Kuusisto/Chris Hodson

Eigentümer: Tuire und Raimo Hilakari, Rauma
Architekturbüro: Jukka Koivula, Rauma

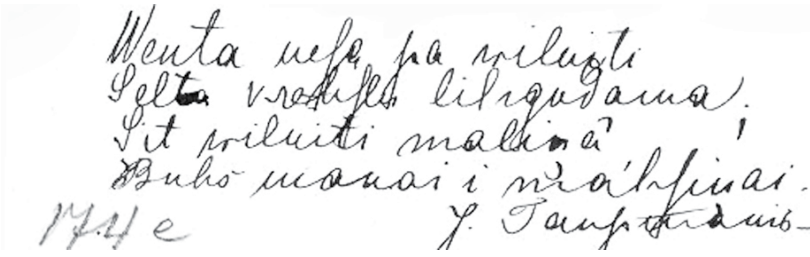
Hervorragende Qualität

Das Dach wurde mit 60-cm-breiten Kupferstreifen verkleidet, die in 200-kg-Rollen geliefert wurden. Sie waren schnittbereit und mussten nur noch für den Einsatz an verschiedenen Stellen die richtige Form und Größe bekommen. Das 500m²-Dach hat viele Details, die von der Montagecrew – einem lokalen Blech verarbeitenden Unternehmen – ein besonders hohes Maß an Können verlangten. Kupfer wurde auch für das ungewöhnliche Regenwassersystem verwendet. Der Architekt entwarf den markanten Schornstein und sogar eine Schutzverkleidung für den Zaun. Die sehr individuell gestalteten Fensterrahmen sind ebenfalls mit Kupfer verkleidet. Dieses Haus ist voll von kleinen wundervollen Details – alle wunderschön ausgeführt und eine wahre Augenweide wegen der Kunstfertigkeit, mit der das Kupfer verarbeitet wurde. Es ist jetzt ein Jahr her, dass das neue Kupfer montiert wurde, das aufgrund der Oxidation über einen schwachbraunen Farbton verfügt. Die Eigentümer sind mit ihrer Wahl sehr zufrieden und wissen, dass das Dach noch viele Generationen überdauern wird.

TRANSPARENTE BESCHRIFTUNGEN IN LETTLAND

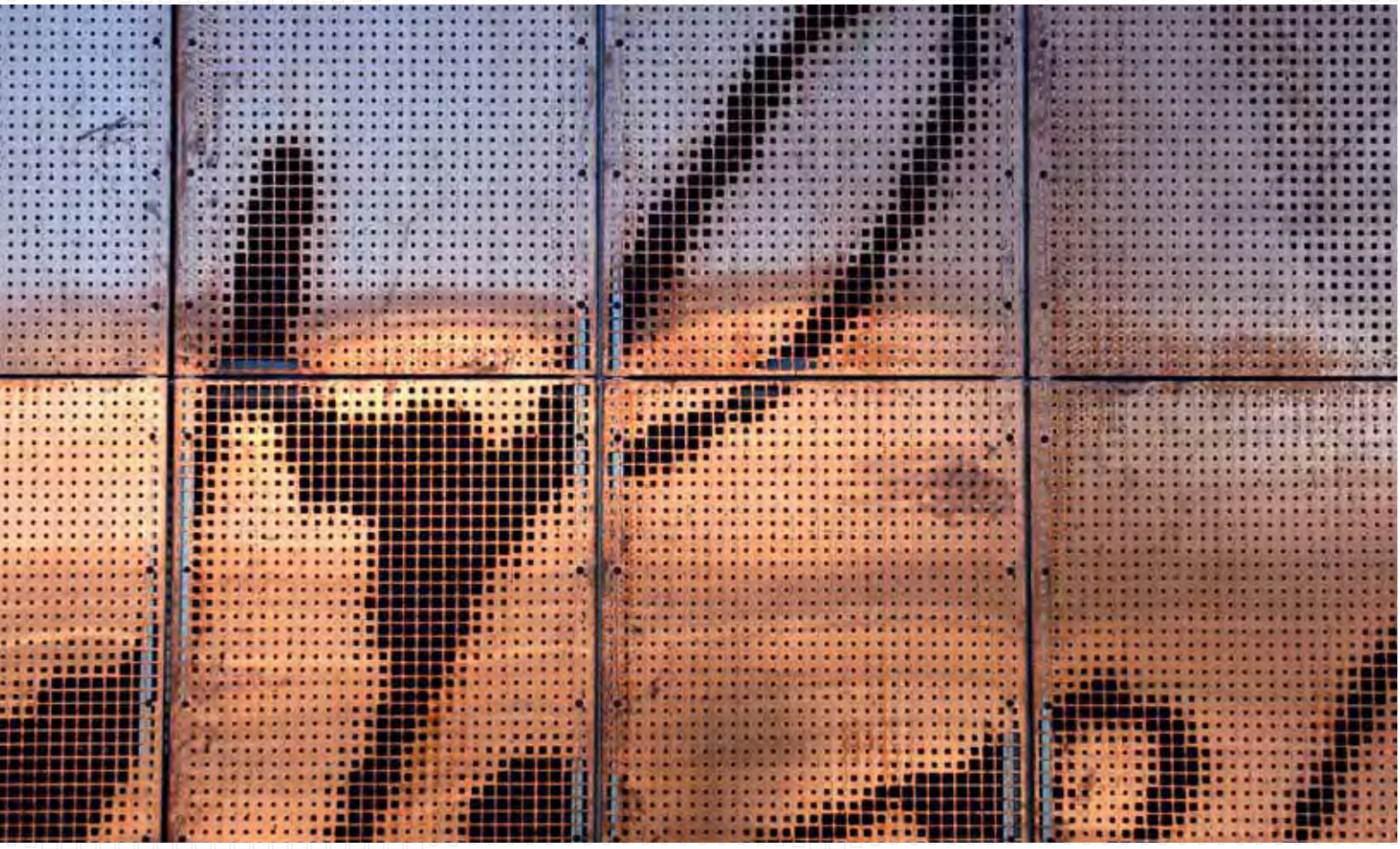
Im letzten Jahr haben wir im Copper Forum (Ausgabe 27/09) das Design einer neuen Bibliothek in Parventa, Lettland, betrachtet, die jetzt fertig ist. Ein Schlüsselelement ihres architektonischen Konzepts ist die Integration von extrem vergrößerten, handgeschriebenen Texten auf perforierten Kupferplatten, die sich um das Gebäude legen. In diesem Artikel sehen wir uns genau an, wie hier gearbeitet wurde.

Bevor Transparenz geschaffen wurde, verwendete man eine perforierte Kupferverkleidung, wodurch die sonst ebenen Fassaden eine dritte Dimension erhielten. Bei diesem Projekt aber erreicht die Technik ein anderes Niveau an Raffinesse, wobei die Feinheiten des Handschriftlichen erfolgreich durch den Einsatz von Licht und Schatten vervielfältigt werden, was durch den Einsatz von nur vier Lochgrößen im Kupfer erzeugt wird. Diese bleibenden Textbilder lassen umgehend auf den literarischen Einsatz des Gebäudes schließen, haben aber auch gleichzeitig eine bedeutende nationale Resonanz, wie die Designer von INDIA Architects erklären.



"Das Kupfer enthält die handschriftliche Inschrift von Krišjānis Barons, des Vaters vieler lettischer Volkslieder. Er widmete sein Leben dem Sammeln und Klassifizieren nationaler Volkslieder (Latvju dainas) und dem Bewahren der gesprochenen lettischen Linguistik durch Anfertigung von Tonaufnahmen. Barons brachte es auf 217.996 Volksliedtexte und gilt somit als verantwortlich für das lettische nationale Widererwachen im 19. Jahrhundert. Seine handschriftliche Aufnahme von Volksliedern wird im namhaften Dainu skapis aufbewahrt. Beispiele davon wurden auf der Fassade der Bibliothek nachgebildet.

Projekt: Parventa Library
Architekten: INDIA architects, Latvia. www.india.lv
Blecharbeit von: Pilsbuve, Latvia



„Zusammen mit dem Kupferlieferanten Luvata wurde eine einzigartige Technik entwickelt, um die sechshundert einzeln perforierten Kupferplatten zu erstellen, die die Fassade bilden. Wir begannen mit Standardkupferblechen mit Löchern von nur einer Größe. Aus diesen entstanden dann die separat mit Laser geschnittenen quadratischen Löcher von vier verschiedenen Größen. Die kleinsten Löcher sind von Kupfer umgeben, das das Tageslicht reflektiert. Die größten Löcher aber sind nur von wenig Metall umgeben und gelten als fast schwarz. Die vier Varianten boten uns eine Gestaltungswelt aus raffinierten Schatten, mit denen Handschriftliches nachgebildet werden kann und der Fassade Tiefe verliehen wird.

„Zunächst wurden Skizzen auf großen Papierblättern erstellt, um das bestmögliche Erscheinungsbild herauszufinden. Kurz danach wurden die ersten Modellplatten von Luvata gefertigt, um unsere Ideen zu testen und Einige sind vom Unternehmen bei der FINN EXPO in Helsinki ausgestellt worden. Diese ersten Modellplatten wurden anhand von Handzeichnungen gefertigt – eine gewaltige Aufgabe, wenn man dies auf sechshundert einzelne Kupferbleche bezieht. Glücklicherweise wurde ein junger Amateurcomputerprogrammierer in unseren Entwicklungsprozess einbezogen, der eine spezielle Software entwickelte, mit der grafische Darstellungen von Barons Originalhandschrift digitalisiert werden konnten. Diese einzigartige, selbst erstellte Software war der Schlüssel zum Erfolg. Nach nur wenigen Stunden waren alle Dateien erstellt und konnten an die Luvata-Fabrik gesendet werden.

„Die zweite Herausforderung bestand darin, das Textlayout an die Gesamtlänge der Fassade anzupassen. Alle Kupferplatten werden in einem bestimmten Abstand von der Gebäudefassade angebracht, um einen weichen transparenten Effekt zu erzielen und dort Beleuchtungshalterungen aufnehmen zu können. Das bedeutet, dass ein Fehler von nur wenigen Millimetern beim Befestigungspunkt das Erscheinungsbild des handgeschriebenen Textes ruinieren würde. Wir haben sorgfältig einige Bereiche mit homogenem Perforationscharakter ausgewählt und sie bis zum Schluss so gelassen. Erst nachdem die meisten perforierten Kupferplatten befestigt waren, wurden die letzten perforierten Bleche bestellt. Jetzt nach der Fertigstellung ist es nahezu unmöglich zu sehen, wo derartige Anpassungslinien am Gebäude zu finden sind."

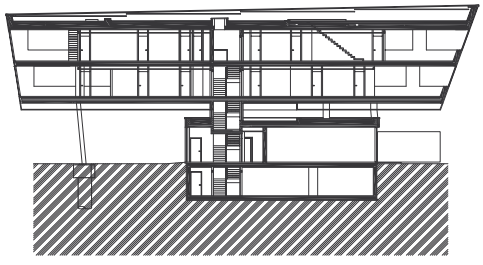
Text von Hannele Kuusisto / Chris Hodson

KUPFERTRIO

Eine ausgedehnte Wohnanlage in Prag verwendet drei Kupferschattierungen, um eine gewagte, horizontal geschichtete Oberfläche zu erstellen, die ihre drei ineinanderfließenden rautenförmigen Gebäudemassen umhüllen. Dieses Verfahren war schon vorher bekannt – aber normalerweise in vorpatiniertem Grün, weshalb diese Gestaltung in Brauntönen eine faszinierende Weiterentwicklung ist.

Mit der Residenz Zabehlice soll eine bestehende weitläufige Sportanlage mit einer gewachsenen Landschaft vereint werden. Ein geradliniger Erdgeschossbau mit darunter befindlichem Parkhaus, in dem sich Verwaltung-, Fitness- und Wellnessbereich befinden, sitzt unter einem Trio abgeschrägter trapezförmiger Massen, das von schlanken Säulen gestützt wird und zwei Etagen mit Wohnungen enthält. Laut Aussage der Architekten sollen diese Massen an drei gestrandete Schiffe erinnern, deren Seiten horizontal übereinanderliegen und die genagelte Bauweise der Boote symbolisieren.

Die solide und kompakte Masse des Erdgeschossbaus öffnet sich mit einer verglasten Wand nach Süden. Die restlichen Fassaden bestehen aus Sichtbetonplatten. Im Gegensatz dazu besteht das trapezförmige Trio darüber aus markanten Kupferdetails, die durch horizontal angeordnete Verglasungsstreifen unterbrochen sind, einige drehen sich aus der Wand heraus und bilden einen Erker. Großzügig verglaste Wände nach Norden sind dem von Bäumen gesäumten Fluss Botic zugewandt. Diese drei Bereiche enthalten Luxusappartments, von denen jedes eine eigene Dachterrasse hat. Die restlichen Dachflächen sind einfach bepflanzt.

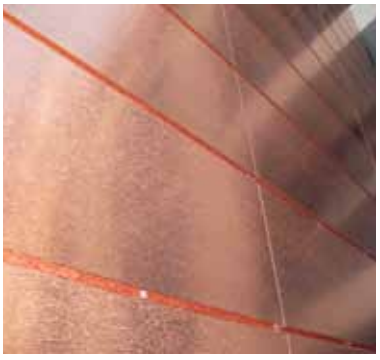


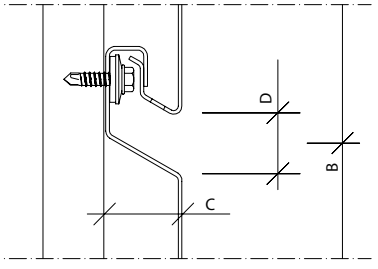
KUPFERTRIO – REZIDENCE ZABEHLICE, PRAGUE

Die Trapeze sind in horizontaler Richtung mit 200 mm breiten Kupferplatten verkleidet, die 2 m bis 4 m lang und Teil eines hinterlüfteten Verkleidungssystem auf isoliertem Stahlbetonunterbau sind. Einer der faszinierendsten Aspekte des Plans besteht in der Kombination dreier verschiedener Farbtöne, um einen weichen Übergang vom helleren zum dunkleren Kupfer zu schaffen. Das wird erreicht, indem man standardmaschinenglattes Kupfer mit Material kombiniert, das in der Firma Luvata's als helle und dunkle Variante vorpatiniert wurde. Die einzelnen Farbkombinationen werden nach dem Zufallsprinzip auf der Fassade positioniert, um ihr dynamisches Design zu unterstreichen und eine Rindenstruktur zu simulieren.

Alle drei Farbtöne verkörpern zu ein und demselben Zeitpunkt verschiedene Stufen der natürlichen Patinierung, die über viele Jahre hinweg im Freien entstehen würde. Interessanterweise werden diese natürlichen Veränderungen für jeden einzelnen Farbton in den kommenden Monaten und Jahren ihren Lauf nehmen und dem Gebäude eine lebendige Dimension verleihen.

Architekt: Atelier KAAMA, Ing. arch. Karel Mrazek, Ing. arch. Jan Tichota
Einbau: Ruukki CZ, s.r.o.
Fotos: Radovan Boček





A = width of the cassette
B = height of the cassette
C = depth of the cassette, min 25mm; max 60mm
D = joint width, min 15mm; max 60mm

Architect: www.hermanowicz.pl
Commissioned by www.integraeko.pl/
Construction work by www.henpol.com.pl/
Installation of facades by www.dachistrych.pl/

COPPER IN HOUSING

There is a growing trend amongst architects to use copper cladding as part of a limited palette of façade materials, rather than in isolation – particularly on housing projects. We featured an example from the UK in the last issue of Copper Forum (28/2010, page 38) and this Polish project takes a similar approach – but in a very different, contemporary style.

Villa Bianca is a medium-rise housing development within a new residential area of Wilanow, just 11 kilometres from the centre of Warsaw. Designed by local architects Hermanowicz Rewski Architekce, the estate consists of several, six-storey blocks with five floors above ground level and one below, containing a total of 347 apartments for living and working.

Despite its total floor area of 64,000 m^2, the development is not overbearing and gives an impression of cool, understated modern design. The white rendered facades combine with dark metal windows and panels, and copper cassettes to give a restrained palette of materials throughout the development.

A regular grid of stacked copper cassettes is applied to various external wall areas giving the impression of a thin surface with regular horizontal bands accentuated by the joint detailing. Around 1,900 m^2 of standard cassettes from Finnish manufacturer Luvata were supplied, made up of 1.25 mm thick copper sheet. The copper has a factory-applied textured, rolled surface which adds a further dimension to its visual characteristics and will influence the natural patination as rainwater passes over it.

Text by Hannele Kuusisto/Chris Hodson

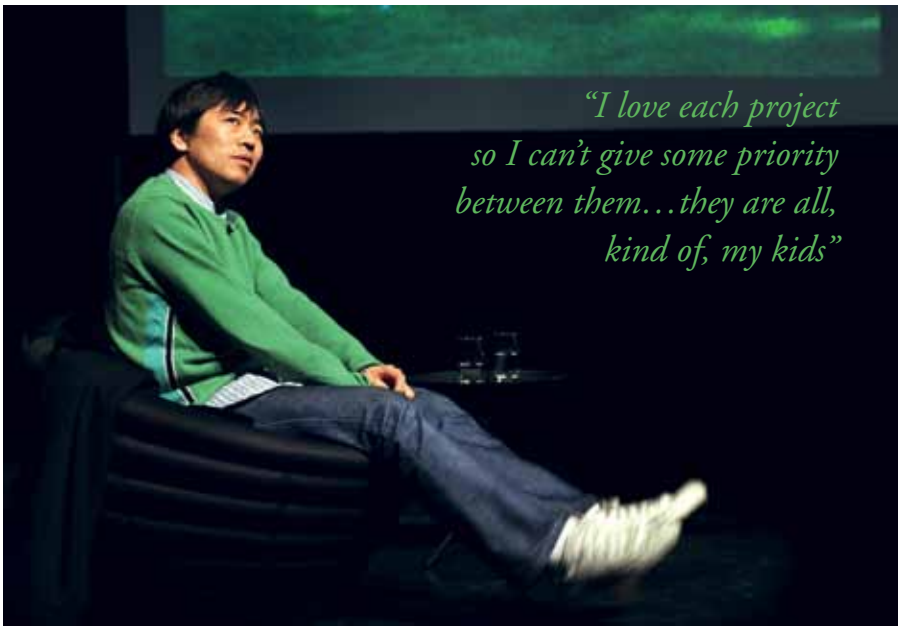


Photo: Anna Hållams

'KEEP IT SIMPLE'

This is the mantra of Ryue Nishizawa, a principal of SANAA, a Tokyo based architecture studio designing innovative buildings internationally, set up some 15 years ago with Kazuyo Sejima. They were joint recipients of the 2010 Pritzker Architecture Prize. Ryue Nishizawa presented a vision of his architecture at the PLÅT10 event in Malmö, Sweden, just after announcement of the Pritzker Prize in April. Copper Architecture Forum editor Chris Hodson was also there and seized the opportunity for an exclusive interview to ask about his work and interest in designing with metals.

By Chris Hodson

CH: Firstly, congratulations! When you discovered that you had won the Pritzker Prize how did you feel?
RN: We were very surprised!

CH: The Pritzker Jury Citation highlights your "singular architectural language that springs from a collaborative process that is both unique and inspirational." How does this collaboration with Kazuyo Sejima and your other colleagues work?
RN: We don't make different roles for each other but try to work all the time in an even way. We have never worked alone and always invite a few other architects to work on each project and then we all work together extensively.

CH: Which of your projects best defines SANAA's architecture?
RN: This is difficult. I love each project so I can't give some priority between them. They are all, kind of, my kids. For each project we try to do our best with an individual program and specific environment.

CH: Before setting up SANAA what were your design influences and which architects or teachers influenced you most?
RN: To me, actually, Kazuyo Sejima is one of the biggest influences and Toyo Ito continues to influence me very much as well.

CH: How do you adapt your ideas and concepts to different places, particularly as SANAA is now working on an international basis?
RN: A very difficult question. The local environment is the important thing for us to drive a project. We love to go to the site first for the atmosphere, then several more times to develop a fuller understanding.

CH: Can you explain your interests and preferences in terms of choosing materials?
RN: I work with many different materials such as metal, wood, concrete and brick. Actually, we often use metal construction because its very light and can give a transparent feeling, but is also strong.

CH: With the New Museum in New York, what were the intentions and process in selecting the transparent, silver colour metal façade material?
RN: Because the New Museum program needed to be enclosed by an opaque wall for exhibitions and the building had to be very tall – 50 m or so – it's kind of a skyscraper. So, we started thinking about how we could give a transparent feeling or nuance to the façade. This is one reason why we had the double layer of metal mesh to give some transparency and a feeling of depth.

I wanted a museum which is very close to the city, with material references found locally. Bowery Street was a very rough street where factories used to be located with metal air conditioning boxes outside. I thought this kind of local industrial feeling could be transformed in our design. The metal mesh on our building looks to me very industrial - kind of normal, a city-side material.

CH: Do you expect SANAA to continue to grow as an architectural practice – more projects, more offices, more people?
RN: This is a very important discussion for us. I don't want to grow the office so big that we have 100 people – this sounds to me difficult to manage – so to me the maximum would be 50 or 60.

CH: How would you summarise your approach to design?
RN: Keep it simple!

CH: Do you see any specific trends developing in architecture internationally?
RN: I have seen so many different movements happen in the world. In the States, computer orientated design is becoming a big movement, and then in Europe I see sustainable architecture leading the way. We can't choose just one aspect as we have so many different directions, so many different issues to discuss.

CH: And finally, not talking about architecture any more, what other interests do you have? Where do you go to relax?
RN: I have my home where I can feel comfortable – and maybe aeroplanes! Travelling gives me an opportunity to refresh myself. I love being at the airport alone, just waiting for the gate to open watching the people around me.

PLÅT10

Every year some 300 architects, contractors and consultants from around Scandinavia – and beyond - come together for a major event to celebrate the use of metals in contemporary architecture.

Here, metal's architectural potential is showcased with influential buildings, novel applications and new techniques. Both locally based and internationally renowned architects present their work and debate the latest innovations in façade design. Previous key speakers have been Kengo Kuma, William Zahner of A.ZAHNER COMPANY, Dominique Perrault and Jacob van Rijs of MVRDV.

Photo: Chris Hodson

This year, PLÅT10 was held in Malmö, Sweden, at the centre of the impressive dockyard redevelopment and overlooked by Santiago Calatrava's iconic 54-storey 'Turning Torso' residential tower. Key speakers were 2010 Pritzker Prize Winner Ryue Nishizawa of SANAA (interviewed opposite) and Bruce Nichol (interviewed on page 16), a founding partner of Front, one of the world's leading facade consulting firms.

ALL ABOUT METALS

The PLÅT events are organised by Åsa Ragnarsson (Far from standard) on behalf of an association of the leading companies supplying the main architectural metals: steel, zinc, aluminium and copper (represented by Luvata). An additional partner is the professional organisation representing Sweden's sheet-metal workers with almost 1,000 member companies. The event also hosted a presentation of the 2010 Swedish sheet metal workers' awards, recognising the importance of craftsmanship in realising architects' designs.

There were presentations by four Scandinavian architects, each describing the role played by a different metal in defining the design and performance of their projects. Åke Brisvall of Åke Brisvall Arkitektkontor talked about aluminium at Hamnens hus (a new customs house) for the port of Kalmar, a modern take on marine architecture. Holsøe Arkitekter's Peter Holsøe presented the Zink House, a sculptural, tilted block of 60 luxury apartments in Copenhagen's Nordhavn. Then, the heat-reflective capabilities of steel sheet for roofs and walls to reduce operating costs were highlighted by Arne Ludvigsson, City Architects, Borlänge.

COPPER IN THE OFFICE

Copper was represented by Josef Eder of General Architecture discussing the copper façade of his Skellefteå Kraft building (featured in Copper Forum 28/2010). After the event, Chris Hodson caught up with him at his Stockholm office and was surprised to find a complete section of the building's façade inside. Josef explained: "When it comes to the copper wall, we liked the idea of having a full scale sample in the office. During the whole process, particularly in the early design stages, we try to do full scale tests of joints and objects in the office and therefore we have a small carpenter's shop here. We try to work with sturdy materials in all our projects and since we have a lot of experience of copper after the Skellefteå build we want to use that knowledge in other projects too."

Inside the Stockholm offices of General Architecture.

Photo: Åke E:son Lindman

Photo: Åke E:son Lindman

Next Spring, PLÅT11 will be held in Stockholm. Visit http://plat10.se/ for more information.

Photo: Anna Hållams

THE HIGH PRIEST OF DETAIL

In his second interview at PLÅT10, Chris Hodson met Bruce Nichol - a British architect and founding partner of Front, the New York based specialist in architectural façade systems. Bruce has previously worked with Foster + Partners, and Renzo Piano Building Workshop. Front is a cross-disciplinary group of creative individuals that collaborates with many leading architectural practices on numerous innovative and original projects, including SANAA's New Museum discussed earlier.

CH: Front has been described simply as "experts in putting it all together". Is this a good summary?
BN: There is a lot more to it than that. We try to enable our clients – whether they be designers, owners, fabricators or contractors – to achieve the design intent of a project. So, we add value wherever we can. We don't have a restricted or limited pallet of materials and we try not to restrict our activity.

CH: So, is the New York Times description "high priests of details" too precise?
BN: Could be – but I quite enjoy that one so I wouldn't like to retract it!

CH: Could you just briefly outline your collaborative process with architects?
BN: On a typical project we are commonly asked to contribute on a technical basis – system design and mechanical and structural engineering – and then to advise on detailing, fabrication and method of project delivery including construction advice. Occasionally we are invited to contribute in a more formally creative way. Perhaps to offer opinion on material choices or colours or proportions in a more conventional architectural sense – and since we're largely architects we greatly enjoy that. But if that isn't the case then we try to be creative with whatever tools we have.

CH: What are your interests and preferences in terms of materiality and the expression of materials and structure?
BN: My interests are, I suppose, characterised by material and structural honesty. I don't particularly enjoy trying to make something look like what it's not, or try to deny its existence. I like to recognise materials and to let them look beautiful in their own way, so metals that patinate naturally I really enjoy.

CH: Can you tell us something about your experience with copper facades?
BN: Well, copper has had somewhat of a rebirth I think in recent years. One generator of that rebirth has been Herzog & de Meuron, who have used copper in some innovative and perhaps counter-intuitive ways. It is quite difficult to perceive the scale of some of their buildings due to the play of light on, and through, the copper cladding. The way that they have formed surfaces, pressed them, embossed them, punched them is fascinating.

We've become involved in similar uses of copper too. We have one on-going project in Boston with Renzo Piano Building Workshop; the Isabella Stewart Gardner Museum, which is clad in pre-patinated corrugated copper to beautiful effect. Another interesting example is a speculative development in New York by Flank Architects with sharply detailed mill-finish copper facades. (Both projects are discussed on page 17).

CH: Looking specifically at metal facades, what do you see as the latest developments, opportunities and innovations today?
BN: I see new metal formation techniques. I'm interested in the way metals can be given surface geometry and we're getting into some quite sophisticated means of forming unusual geometrical and non-standard shapes. And there are applied finishes - not necessarily paint systems but things that are slightly more sophisticated and subtle, different coatings that can give metals greater longevity and a certain finish quality that is unusual and very seductive. We see different iridescent finishes being applied to metals that make them subtly beautiful: it is often hard to tell what a certain metal is, and they can transform under different lighting conditions.

CH: Do you see any specific trends developing in architecture generally today?
BN: One trend that springs to mind is form finding. Architects have been trying to discover new forms and design in an organic way. At first this was a little misguided. Computer software kind of freed up the architect to invent new shapes, but the shapes weren't rational and so they weren't readily buildable. There was a lot of, what I call, blobby architecture that was really quite ugly. But we have seen that become more and more rational, perhaps derived from pure geometry and then extracted, extrapolated, made into something buildable. Forms based on engineering first principles that can be accurately described, turned into proper structures and constructed.

CH: What other interests do you have away from work and where do you go to relax?
BN: Well, I do something that I love. But I try to entwine my work and outside interests. I very much enjoy the arts and if I can work on buildings that are art institutions, even better. Then I can also enjoy and learn from the artists that use them.

ISABELLA STEWART GARDNER MUSEUM EXTENSION, BOSTON

Renzo Piano Building Workshop's design for a major extension to a late 19th century Italianate palazzo embraces a central horticultural theme with its extensive greenhouse and surrounding landscaping. The new building's four volumes will be clad with crystal clear glass for maximum visibility and opaque natural materials – brick and copper.

The desire for an organic, living green finish with depth and vibrancy led naturally to copper and Renzo Piano's earlier copper Padre Pio Church was the starting point. Renzo Piano takes a tireless approach to investigating materials and, working with Front as an 'intermediary', rigorous design and research was carried out on the façade cladding, which passed through several iterations. The eventual outcome is a ventilated rain-screen system utilising specially pre-patinated copper sheet with a distinctive corrugated profile. It is a very lustrous green and, because the surface is undulating, it will take on slightly different shades and colours over its surface on each face of the building - and that will change gradually over time as well. Samples and elevation mock-ups have been erected and tested, and the cladding itself is due to be erected on site at the end of this year.

APARTMENT BLOCK, WEST 12TH STREET, NEW YORK

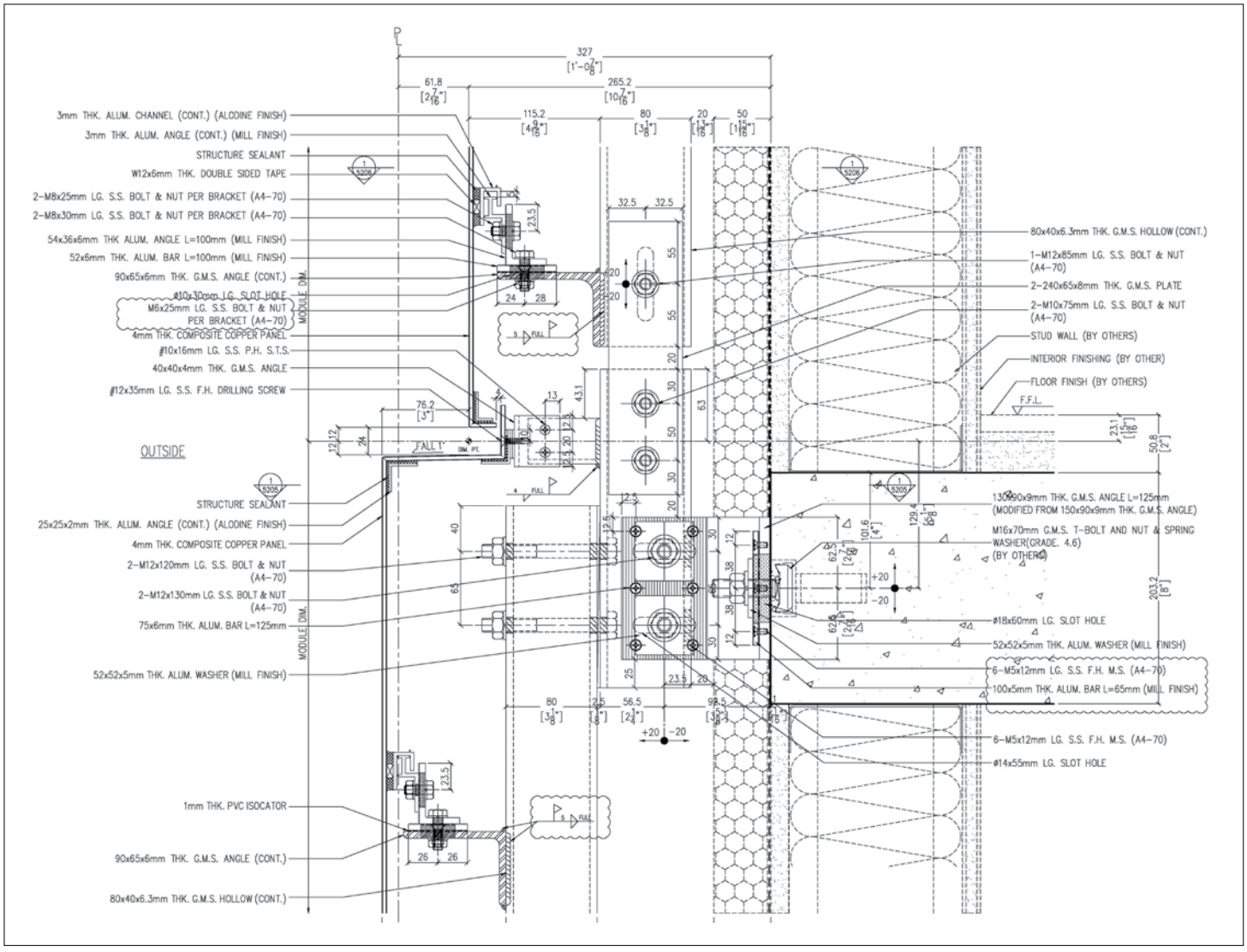
This speculative, 12-unit development by Flank Architects needed to appeal to its potential market and, at the same time, respond to its context with a thoroughly contemporary architecture based on local references. The façade is modulated with protruding and receding elements – pushing and pulling – as a play on the massing typical of bay-windowed traditional housing in the area.

Front's façade design uses a 4 mm composite sheet with a mill finished copper outer face which will continue to work well visually, alongside nearby red brick and brown stone, as it patinates over time. Different techniques were explored to achieve the crisp, square corners and a V-cut and fold

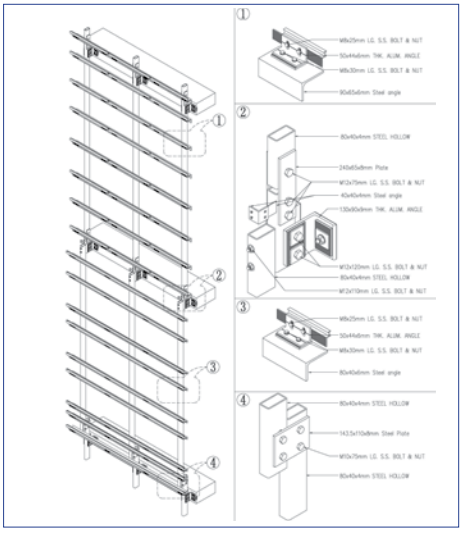
method decided upon. The composite panels provide stiffness over span, with important fire protection and noise reduction characteristics. The copper composite panels form a rainscreen system supported by steel posts and rails creating a drained and ventilated space behind (see Copper in Detail on page 18).

The crisply detailed design intent shown in visualisations, such as that above, has been realised in the completed building.

APARTMENT BLOCK FACADE, WEST 12TH STREET, NEW YORK



A development mock-up highlights the façade forms.



A steel support framework is used for the copper facade.

The support framework, still visible during construction.

AUSTRIAN CHOCOLATE manufacturer Harrer has opened a new production plant and visitor centre in the Hungarian border town of Sopron to serve its growing network of shops. The family business has a long-term commitment to quality and this is reflected in the slick, contemporary building design by Austrian architect Christoph Huber and the use of pre-patinated copper with white render, timber and glass for its exterior.

Chocolate Boxes

The building is set in an enterprise park close to a residential area and its design aims to open out into its environment, rather than enclose its activities. The building is on a southern slope, with a wonderful panorama of downtown Sopron and specific functions are organised using level changes. Mechanical and storage areas are on the lowest, copper-clad level inset into the hill. The main production areas and cantilevered visitors' centre and café occupy the intermediate floor, then a copper box containing offices crowns the building.

Visitor circulation is separated from the production areas, developed using two distinct volumes - both white rendered. The production box is cut into the copper clad lower storey, while the slightly elevated visitor centre and café box is cantilevered out and more open, with glazing on two sides to maximise views. The pre-patinated copper cladding is detailed with a horizontal emphasis, presented as bands of varying widths, carried straight across service doors as well as facades. The building successfully combines the functional demands of confectionary manufacture with light and inviting public spaces where the history and production of chocolate can be showcased and visitors can relax.

Based on an article by Zoran Vukoszavlyev
Architect: Architekt Dipl. Ing. Christoph Huber (awarchitekten, Vienna)
Contact architect in Hungary: Architekt Dipl. Ing. Gábor Árpád Kiss, Sopron
Built: March 2008 – June 2009

GOING GREEN IN BLACKHEATH

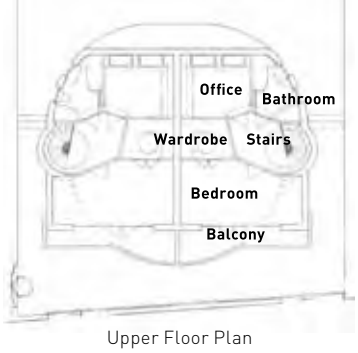
By Chris Hodson

Photo courtesy of KME UK

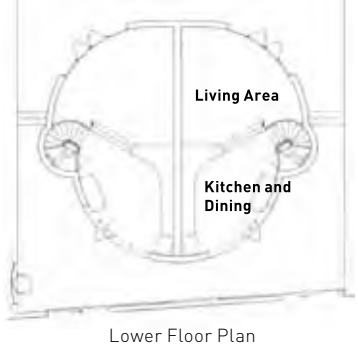
British designer and property developer Michael Kemp used his previous experience with copper at his own home to create maximum impact with pre-patinated copper street elevations on a development of two new houses.

Michael Kemp considers the Blackheath area of London to be his home, continuing to live and work there after many years. Blackheath is an inner suburban area of southeast London, characterised by large 19th century villas with generous space around them. Although often challenging in terms of obtaining permission for development, the spaces between original houses present opportunities for new development, as Michael Kemp explains: "I bought the site without planning permission – after others had failed on two occasions to obtain consent for a single house – and developed a mirrored pair of semi-detached homes for sale."

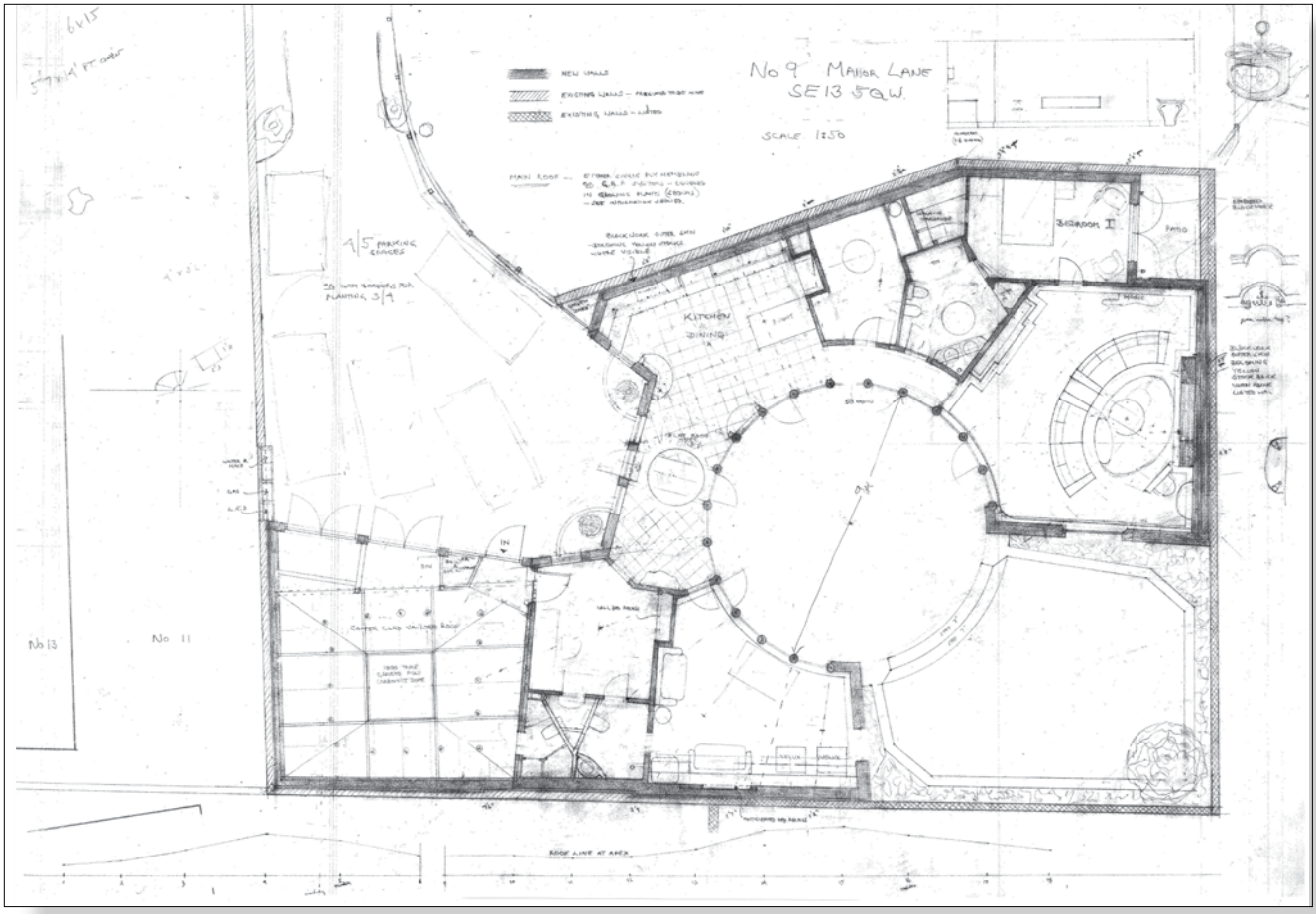
Each of the two levels follows a different plan geometry, with open living areas downstairs, contained by near semi-circular walls. The upper level has more rectilinear areas for sleep and work, with a bow-fronted balcony, highlighted by pre-patinated copper cladding supplied by KME UK. Michael Kemp continues: "It is probably unusual to use pre-patinated copper for a small scale residential development. I wanted to use the material mainly because of the uncompromising colour but also because of its historical associations with London buildings. This, together with the lime render, gives – I believe – a timeless quality, managing to be both traditional and contemporary at the same time. The pre-patinated copper was chosen for 'kerb appeal' and certainly was largely responsible for attracting the considerable interest from potential purchasers: in fact, one of the houses has already been sold.



Upper Floor Plan



Lower Floor Plan



Michael Kemp's own home with its unusual plan (above) incorporates a copper dome (below).

COPPER DOME

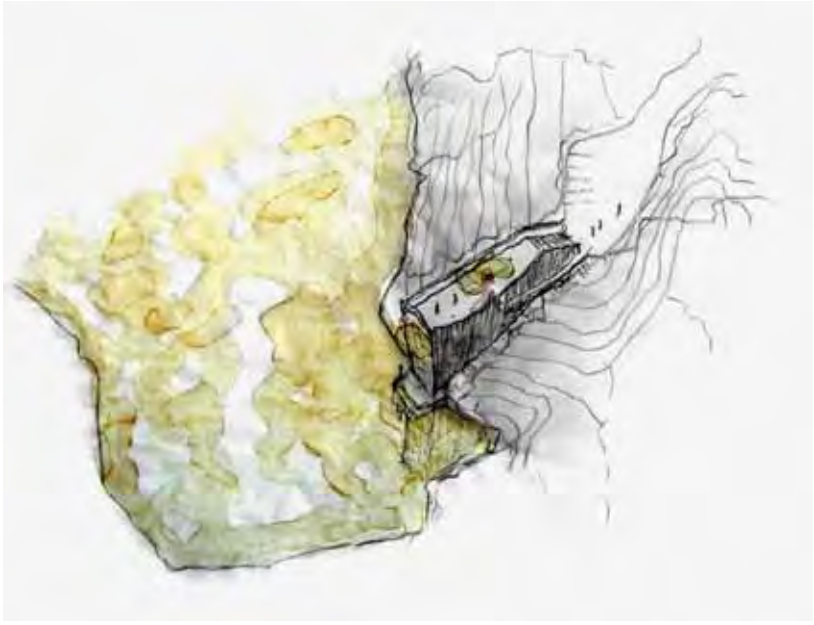
"Actually, I had used copper some years earlier on my own home, nearby in Blackheath. This building also sits in open space next to an older house but takes a different approach. It is all on one level and a planted 'green' roof was chosen to suggest the house was carved out of a hillside. This was also the justification for the rough Portland stone cladding and large pieces of ammonite fossil can be seen incorporated into the stone. Contrasting with the living roof is a shallow copper dome - the only part which is visible from the entrance gates. The copper adds a 'gravitas' to the dome and links it with the older house: with hindsight, I just wish that I had used pre-patinated copper here as well."

ABOUT THE DESIGNER

Michael Kemp attended the famous Goldsmiths College in London during the early 1960's and studied fine art. He has spent most of his life as a furniture designer and bespoke maker based at his own small workshop below the copper dome at his home. Although not an architect, he designs houses "simply as a larger piece of furniture" and also acts as both the builder and developer.

By Matti Sanaksenaho,architect

CIPEA VILLA Nanjing, China



Concept draft

The Villa is part of the international CIPEA architecture exhibition located in the vicinity of Nanjing in Pearl Spring Tourist and Holiday Resort. The exhibition has been set up by architect Arata Isozaki from Japan who also acts as the exhibition curator. The exhibition buildings wind round the lake surrounded by hills of great natural beauty. Four public buildings have been constructed in the area: the Club House has been designed by Ettore Sottsas from Italy, the Museum of Contemporary Art by Steven Holl and the Congress Center by Isozaki himself. In addition to these, there are twenty villas by the lakeside designed by ten Chinese architects and ten architects from different parts of the world, such as SANAA Architects from Japan, Mansilla & Tunon from Spain, Odille Deque from France, Sean Godsell from Australia and Ai Wei Wei from China.

The Villas are designed as holiday residences and serve as guest studios for artists, accommodation space for families, and as facilities rented to groups and corporations for meetings and seminars or for use as work rooms. In practice the Villas are like small landscape hotels about half an hour's drive from the centre of Nanjing.

Area: 800 m^2

Volume: 2 700 m^3

Client: Nanjing Sifang Educational Enterprise, China International Practical Exhibition of Architecture

Main design and architectural design:
Architects Sanaksenaho Arkkitehdit Oy: Matti Sanaksenaho architect SAFA, Pirjo Sanaksenaho architect SAFA, Maria Isotupa architect SAFA, Jaana Hellinen architect SAFA, Tommi Terästö architect SAFA, Natsuko Wakimoto student of architecture

Structural draft designs:
Insinöörotoimisto Matti Ollila Oy:
Tero Aaltonen, MSc in Engineering,

Design period: 2003–2004

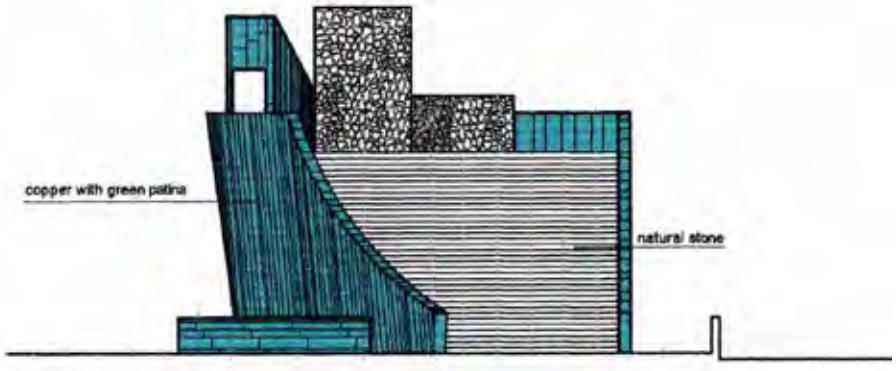
Construction period: 2008–2011

Photos: Matti Sanaksenaho
Sanaksenaho architects

Northeast facade

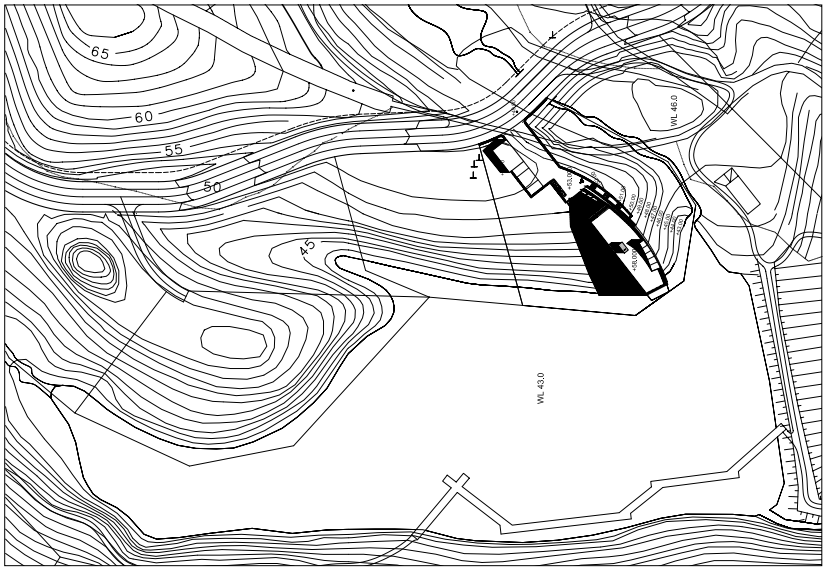
View from the lake, a conceptual image

Southeast facade



Northwest facade

Overview of the area

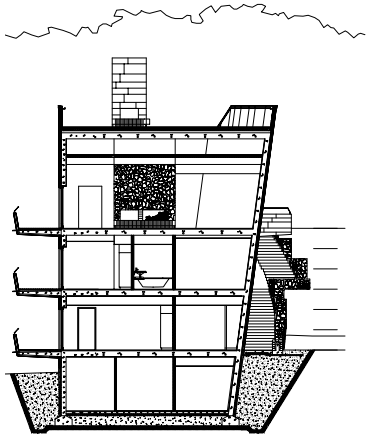


Site plan

The Villa designed by us is located very centrally, on a small cape at the beginning of the exhibition round. The role of the building is to enforce the surrounding nature and bring it close. The Villa protrudes from the cover of the forest toward the lake, embracing the water and the view. From the outside the end of the building is like a Chinese lantern reflected on the lake's surface.

Entrance to the building takes place via a narrow bridge leading to the lounge floor, which is the most public level of the Villa. The meeting room can be joined together with the dining room by opening the sliding door. The recreation room with an open fireplace and the lounge have views towards the lake. The bedrooms are located on the lower floor and the two-storey master suite on the ground level serves also as a guest studio, which extends to the lake as a private pier. The roof terrace, which is accessed from the entrance courtyard like Villa Malaparte, offers a pleasant area complete with granite flooring and a fireplace for outdoor relaxation. The terrace has views towards the lake, with the silhouette on Nanjing seen in the horizon. The load-bearing frame has been built of in-situ concrete and the cladding material of the Villa is Finnish pre-patinated green copper.

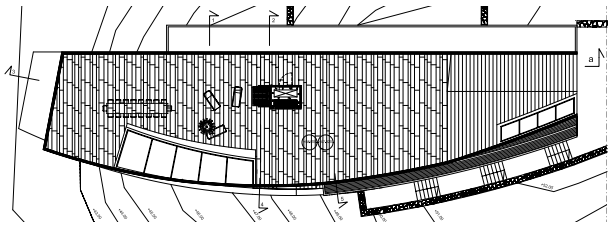
The starting point of the architecture of the Villa is life in harmony with nature, with the built-up environment in dialogue with free nature. The Villa is being referred to as the "boat house" due to its shape and location on the shore.



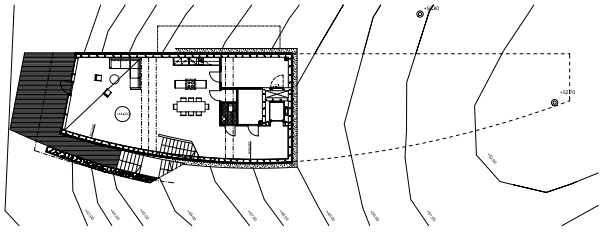
Section

Completed façade

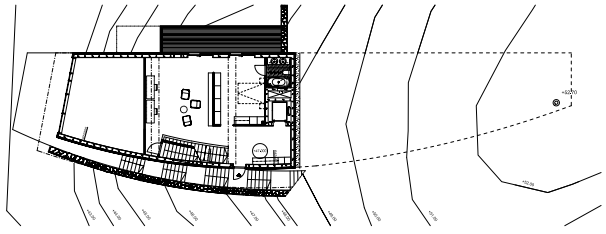
Roof terrace, a conceptual image



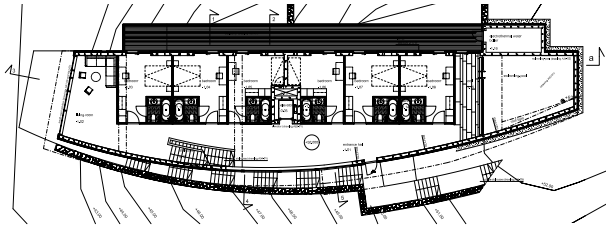
Plan drawing, roof terrace



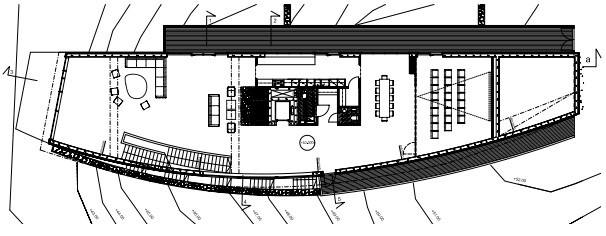
Plan drawing, third level



Plan drawing, second level



Plan drawing, first level



Plan drawing, basement

External staircase to roof terrace

Ramp to roof terrace

SKY OF BRONZE

A floating bronze staircase forms the heart of a contemporary London home, bringing light and joy into the centre of the deep-plan building conversion, as Ana Serrano and Elantha Evans explain. But this project also reveals much about their inspirational practice's unique approach to design in its widest sense.

A principal challenge was how to bring a feeling of lightness to the centre of a house with a deep floor plan and no natural light from above. How could we transform the most uncomfortable space into the most uplifting, inspiring and dynamic part of the house – the heart that beats life into it?

We created a 3-storey space for the stair in order to bring together the circulation – both horizontal and vertical – avoiding dark corridors and always returning back to the space as a point of reference when moving from front to back or floor to floor. The stair had to bring light and joy to the experience of the journey around the house – separating and connecting, containing and flowing.

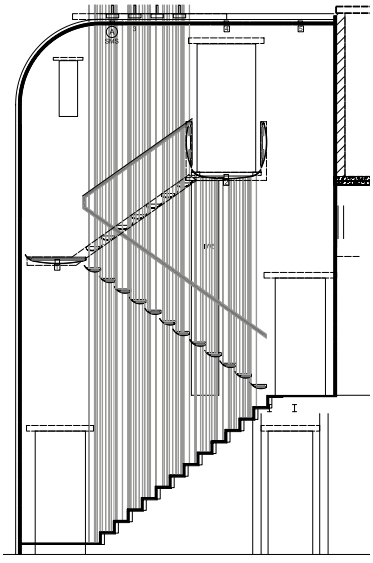
Our intention was that the stair should be experienced differently from above and below. On descending the stairs, the dark stained timber floors of the 1 st floor bedrooms become the top surface of the treads, dropping down into the ground floor living room. From above, the treads are rectilinear with just a glimpse of the bronze appearing where the curve laps up to partly close the gap between treads, needed to meet local regulations. But looking up, when ascending the stairs, the curved bronze undersides of the treads form a shimmering blanket above one's head, embellished by the lighting that we specially designed to highlight the reflective nature of the material.

> *"the stair as the heart of the house… all circulation united into one space… a blanket of timber…a sky of bronze…*

The stair-space sits between two existing massive, parallel, load-bearing walls that enabled the cantilevered stair-tread solution and the full height of the space to be opened up. The finishes hide an extensive steel structure that works hard to give the feeling of lightness and simplicity that the volume of the space and stair within it demand. The highly tensioned steel cables that span the full 3 storeys play a mathematical game in their layout reminiscent of a musical instrument. At the same time, they provide the necessary barrier against falling and hold the solid walnut timber hand-rail, apparently suspended in space, with neither element touching the cantilevered treads.

Architects: Serrano Evans Partnership
www.serranoevans.com
Photos: Richard Bryant/ arcaidimages.com

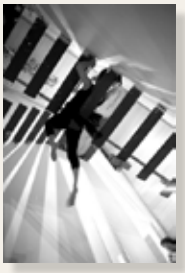
The Kendalls Hall project is a conversion of a protected, historic building in London, built in 1849 as the 'Hampstead Parish Workhouse', converted into a hospital in 1915 and then into houses and flats by a developer in 1987 before being purchased by the current owner and client who commissioned this reinterpretation by Serrano Evans Partnership. The architects' aspiration at Kendalls Hall was that the architecture and interior design should provide a coherent, calm and elegant backdrop to the challenging provision of 6 bedrooms and 6 bathrooms – and that the circulation spaces became the animated and inspiring links between them. The project is a complete example of their holistic approach to architecture and design, explored and expressed through both the spatial experience of moving through the house and the design and detailing of the elements; from the overall concept of interconnections and views, through to the individual pieces of furniture that the architects were also commissioned to design at Kendalls Hall.



interactive…connecting…
a white skin wrapping it…
the wires as a mathematical game…

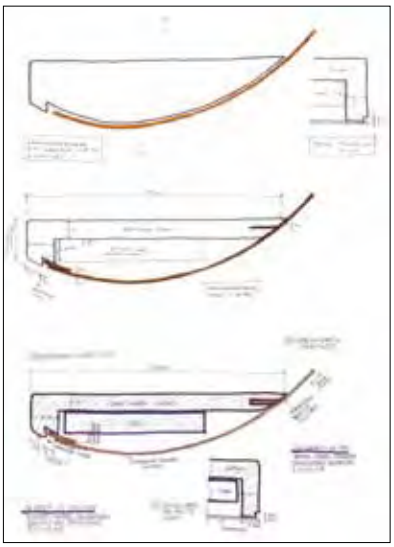
ABOUT THE ARCHITECTS

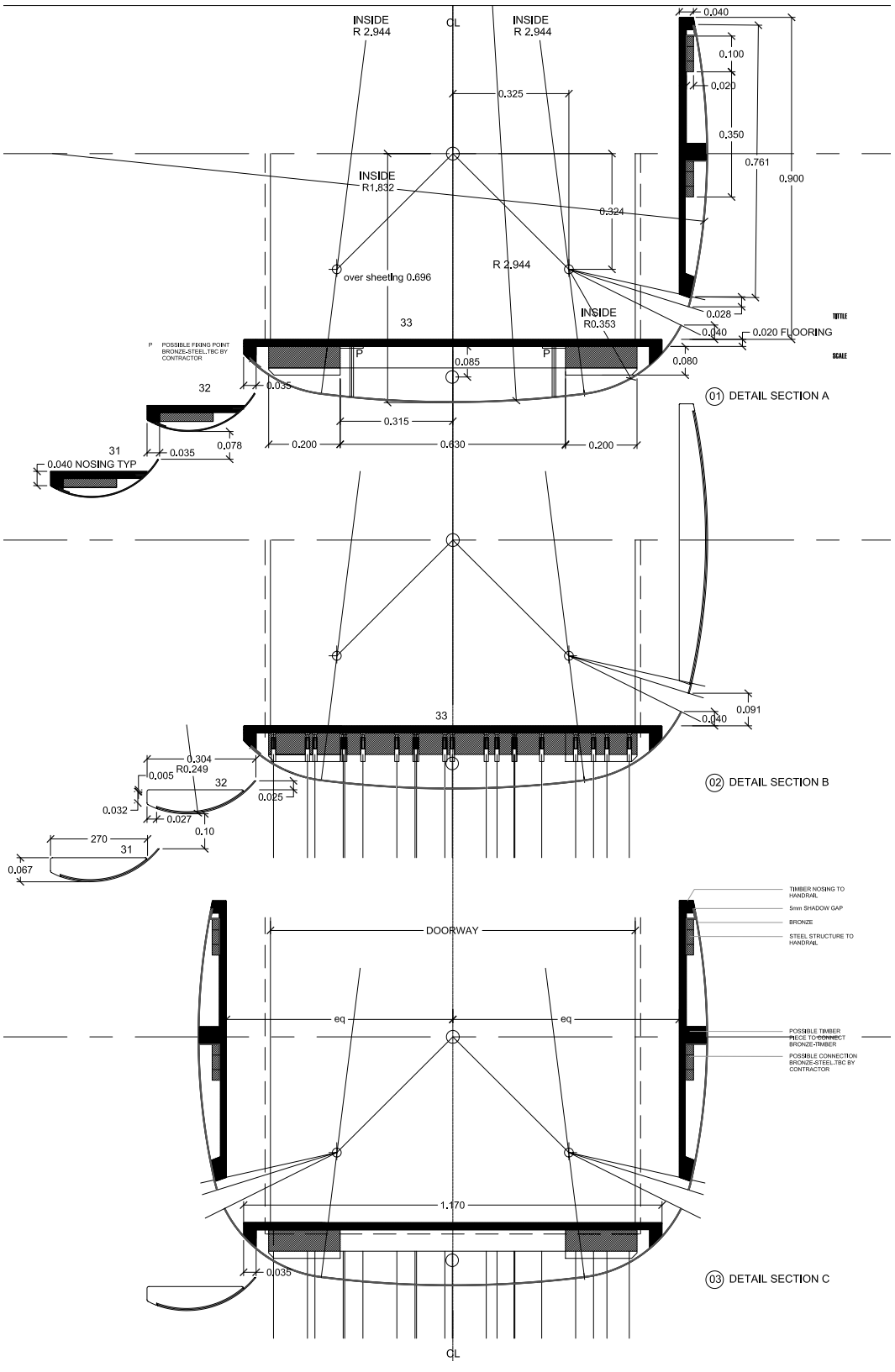
Serrano Evans Partnership is a London-based Architectural and Design practice interested in exploring and questioning the boundaries between design, architecture, fashion and movement. The partnership was formed in 2005 between Ana Serrano and Elantha Evans – after meeting whilst working for Richard Rogers Partnership / Estudio Lamela on the award-winning Madrid Barajas Airport, Spain. Serrano Evans is an international practice, with recent and current projects in Asia, Europe and the UK, of varying scales – from an Airport in Tyumen, Russia, to house and furniture design, and installation / performance at London's Tate Britain.



Their Kendalls Hall project has inspired and hosted site-specific performances, art films and a high-fashion photo shoot, and when presented to the public as part of London's 'Open House Weekend 2009', it was received with such enthusiasm that it was invited to appear again in 2010. A photograph of the stair has recently been included in the "50 years of London Architecture" exhibition at the Mall Galleries, with Serrano Evans included as one of the UK's "up-and-coming" young practices.

BRONZE STAIRCASE, KENDALLS HALL, LONDON





Text by: Esko Miettinen, Photo: Eark

Renovation of the clock tower at Helsinki railway station

The main railway station of Helsinki was built in 1919. It was designed by one of the most acknowledged Finnish architects; Eliel Saarinen (1873–1950).

The architectural competition for the design of the station building was opened in 1904. A total of 27 entries were received, and Eliel Saarinen together with Herman Gesellius won the competition. The entry submitted by Sigurd Frosterus was ranked second and greatly influenced Saarinen's implementation. The construction period of the station was quite long after the competition. Finland became an independent nation in 1917.

The railway station is a central landmark in terms of architecture and townscape in the centre of Helsinki. The building has undergone several refurbishment projects, but the exterior architecture has remained quite unchanged and in the original form. The railway station is one of the most significant buildings designed by Eliel Saarinen in downtown Helsinki. The building is recognised as a national monument, also internationally.

The renovation of the clock tower at the Helsinki railway station started in 2009 and was completed in March 2010. The clock tower was refurbished in many ways during the project. All the ca. 3800 granite stones of the clock tower were dismantled, cleaned and re-laid. The joints between the stones were reapplied. The clock face was cleaned, the clock mechanism serviced and the minute points gilded. The lighting system of the clock was replaced. The copper surface of the clock tower was replaced with new pre-patinated green copper cladding.

The tower renovation project is an important visible reminder of how significant the buildings that represent the first phase of modern architecture are to the townscape of Helsinki.

Eliel Saarinen emigrated to the United States in 1923 and continued his successful career as an architect there. His son, architect Eero Saarinen (1910–1961) took over from him as an acknowledged international designer in the USA.

Helsinki Music Centre emerges

Façade on Töölönlahdenkatu street, with Parliament House in background.

Helsinki Music Centre, scheduled for completion in 2011, is taking shape in downtown Helsinki. The main façade materials include pre-patinated copper and glass.

The architects behind the competition entry for Helsinki Music Centre, "a mezza voce", were guided by the view that new development should enhance the integrity and calm general expression of the area. The building has been integrated in the coordinate system of its surroundings making two sides of the main mass of the building parallel with Finlandia Hall and the Parliament House, while the tallest part of the main mass continues on the level of the east wall surface of Karamzin Park. The tallest parts have also been located as close to the green zone as possible to continue the impression of public buildings in a park. The transparent glass side of the Music Centre displays the functions of the building and at the same time connects it with the newer buildings and newer architecture of the east part of the area. On the street sides the more solid, perforated copper cladding pre-patinated in green colour seeks to connect with the buildings of Etu-Töölö area and the green park volume.

The Parliament House is part of the square composition and the view from the stairs down towards the parks and further to the Parliament House is open. The inclined deck of the lower building part, treated like a park, descends towards south making space for the independent architecture of the Contemporary Art Museum Kiasma.

On Mannerheiminkatu Street level a pedestrian and bicycle road runs from the entrance square along a lawn plane towards Kiasma, while a path for pedestrians winds down to the event square on Töölönlahti level. The square has been designed for public outdoor concerts and similar events that can be watched from the inclined deck above. Events taking place inside the Music Centre as well as international music happenings can sometimes be shown on the video screen erected in the square.

Views from Parliament House.

Façades

The massing of the building is based on the winning entry in the competition. Helsinki Music Centre is located in the joint area of the rectangular Parliament House and the more free-form Etu-Töölö area, and this is reflected in its coordinate system. The façade materials of the building are copper and glass.

The detailing of the copper cladding on the façade is built on small-scale abstract patterning based on a vertical rhythm. The patterning has been designed separately for each façade panel, but in line with the general design of the façade in question.

The vertical patterning consists of patinated copper cladding, while a perforated surface is used as the background for the pattern. The patterning has been implemented with great care.

The colour of the patinated copper cladding is soft bluish green. On macro scale the general appearance of the copper surface is light and it also varies according to sunlight and the direction of light.

The façades have primarily been realised with pre-patinated 1.5 mm copper sheeting, each sheet patterned separately with a compression technique before erection. The sheets are attached on the frame using a composite installation technique.

Some areas of the composite façades, such as the areas of ventilation openings, have been coated with hand-patinated 3 mm massive copper panels.

The façades reflect a controlled impression, which has been technically demanding to implement.

The glazing of the lobby areas of the Music Centre was in most parts implemented as point-fixed glazing.

A detail of the copper façade; the tower of the National Museum (Eliel Saarinen) is reflected on the façade of the Music Centre.

By Esko Miettinen, architect SAFA

HELSINKI MUSIC CENTRE

Architectural competition 1999-2000.
The winning entry "a mezza voce" was submitted by LPR Architects

Actual development decision in 2008

Architectural design
Marko Kivistö, Ola Laiho, Mikko Pulkkinen, Architects SAFA
Acoustic design
Nagata Acoustics, Yasuhisa Toyota

Structural design
Vahanen Oy, Matti Ollila

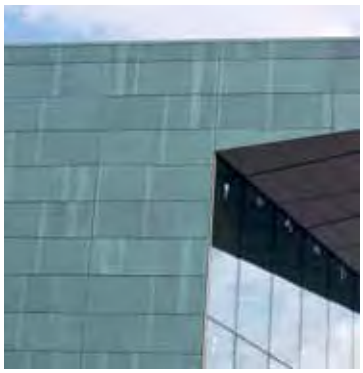
Floor area 36000 m²
Volume 25000 m³
- main hall 1700m²
- five small concert halls with 140–400 seats
- artist and practice facilities for two symphony orchestras
- teaching facilities for Sibelius Academy

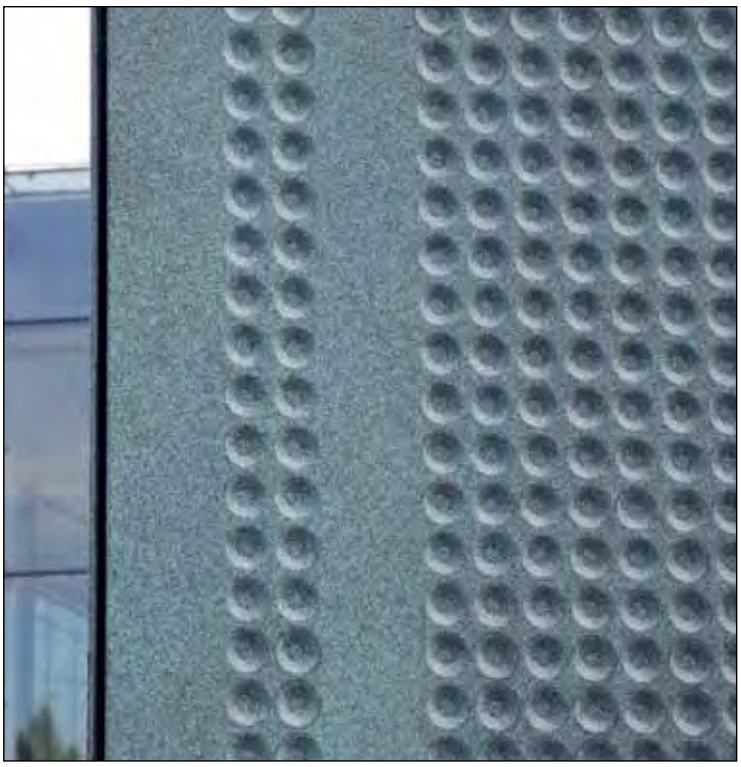
Main contractor
SRV Viitoset

Façades
Teräselementti

Photos
Ola Laiho and Eark

Music Centre seen from Hakasalmi Villa (Helsinki City Museum).





A detail of the perforated copper façade.

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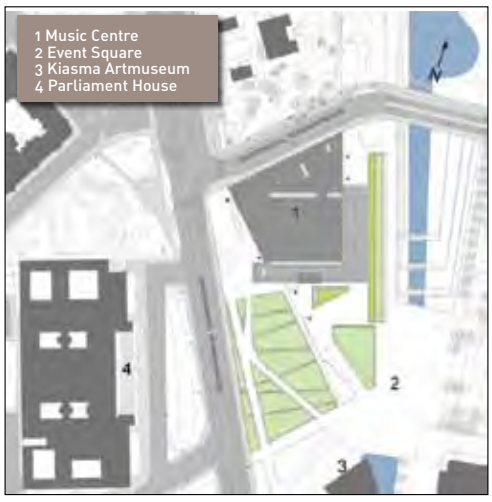
Töölö, Nervanderinkatu Street.

Music Centre, site plan.



Esko Miettinen, architect SAFA

Töölö, Töölönkatu Street.

Town plan of Töölö area and Music Centre

The town plan of the Töölö area of Helsinki has been ratified on 10 October 1917. – The street grid and the space structure of the town plan have clearly been influenced by Camillo Sitte's thoughts.

Camillo Sitte (1843–1903) was a Counsellor of Building and the Director of the Vienna State Polytechnic School. In 1889 he published a book titled "Der Städte-Bau nach seinen künstlerischen Grundsätzen", which was translated into English as "City Building According to Artistic Principles". – It was published in three identical editions, the last one in 1901.

Sitte paid attention to the artistic content of the urban space, its aesthetics. – The street grid and the space structure of the town plan of Töölö reflect these thoughts. In the Etu-Töölö area the street grid and the space composition are adapted to the contours of the terrain but are still based on a controlled rhythm, which depicts the functionality of the space series.

Sitte highlighted the opportunities that the functional aesthetics of an irregular and free-form town space offer for urban building, without underestimating the feasibility of a town space based on rectangularity as a tool for urban planning.

The Töölö town plan determines the nature in terms of the town space of the part of Etu-Töölö located on the side of the Parliament House, west of the present Mannerheimintie Road. The town plan indirectly describes the opposite side of Mannerheimintie Road with its park-like sections and industrial estates, which towards the end of the 20th century were converted into an area of cultural functions.

Helsinki Music Centre is located in the joint area of the rectangular Parliament House and the more free-form Etu-Töölö area, and this is reflected in its coordinate system.

The town plan of the Etu-Töölö and Taka-Töölö areas in Töölö, ratified in 1917, is in essential parts based on the winning entry of architects Gustav Nyström and Lars Sonck in a competition in 1906. The plan was supplemented with architect Bertil Jung's plan for the Central Park in 1911. The town plan has been supplemented at several stages, but the original spirit of the plan has been preserved and developed each time modern building projects have been implemented. Examples of such projects include the building of the Social Insurance Institution of Finland designed by Alvar Aalto, and the Temppeliaukio Church designed by Timo and Tuomo Suomalainen.

COPPER – KEEPING DISEASE AWAY

The UK's Copper Development Association (CDA) is at the forefront of promoting research and development into the antimicrobial effects of copper. CDA Director Angela Vessey discusses the implications for interior design, architectural ironmongery and fittings – particularly in healthcare buildings. But this unique capability of copper could have much wider implications for the design of all types of buildings.

Last year's swine flu crisis highlighted the role that 'touch surfaces', such as door handles, can play in the spread of infection, acting as reservoirs of infectious pathogens just waiting to be transferred to the next hand. Hand washing and regular cleaning are the two preventative actions recommended but recontamination is always just a touch away: germs can survive on common materials such as stainless steel, plastic and aluminium, for days – even months. To prevent this, architects are now specifying Antimicrobial Copper touch surfaces for healthcare buildings, where infection prevention and control are key concerns.

"copper showed an impressive 90–100% reduction in contamination"

COMPELLING EVIDENCE

The scientific evidence for copper's antimicrobial efficacy is compelling: research at the University of Southampton has demonstrated copper's exceptional efficacy against the headline-making pathogens – MRSA, C. difficile, Influenza A and E. coli. Interestingly, results have shown that copper has unmatched efficacy, outperforming silver-containing 'antimicrobial' materials. Copper has also been put to the test in a clinical trial at Selly Oak Hospital in Birmingham, in which frequently-touched surfaces – such as taps, toilet seats, light switches and door furniture – were replaced with copper equivalents. The results showed an impressive 90–100% reduction in contamination on these surfaces compared to controls, and a subsequent Department of Defense-funded project in the US backed up the findings earlier this year.

It is not just pure copper that has antimicrobial properties – bronzes, brasses, nickel silvers and copper-nickels are efficacious too. In fact a landmark registration in 2008 led to nearly 300 copper alloys being recognised by the US Environmental Protection Agency as the first solid materials eligible to be marketed with public health claims including a 99.9% reduction of the 6 tested bacteria within two hours (MRSA, Staphylococcus aureus, Enterobacter aerogenes, Pseudomonas aeruginosa, E. coli O157:H7. and Vancomycin-resistant Enterococcus faecalis).

With a range of differently-coloured copper alloys available to suit different designs and applications, and copper's exceptional environmental credentials, it's little wonder high-profile healthcare projects are already incorporating copper. For example, a cutting-edge facility at Sheffield's Northern General Hospital was designed with the goal of 'setting the gold standard for infection prevention', and Antimicrobial Copper door furniture was specified throughout in a bid to reduce the risk of healthcare associated infections in particularly vulnerable patients. Here, Dr Frank Edenborough, Consultant of the Sheffield Adult Cystic Fibrosis Centre wanted to create an environment to meet both the clinical and personal needs of patients: a ward that would combine key infection prevention measures with a comfortable and appealing environment to mitigate the boredom of sometimes very prolonged stays.

WIDER APPLICATIONS

Recognising copper's beauty as well as its antimicrobial properties, a piece of copper artwork was commissioned for the clinic, which will greet patients, staff and visitors when they enter. The artwork is by prominent, London-based metal smith Adaesi Ukairo, who has a long-standing love of working with copper and its alloys. "I was originally drawn to copper for its malleable qualities and its ability to patinate beautifully, and it rapidly became the material of choice to evoke my designs," she said. "It was the perfect material to embark on an ambitious design for a 2 metre-long wall piece for the clinic. My intention is for the piece to act as a window, allowing the viewer to soar through a landscape, transported momentarily as they enter the clinic."

The interior potential for copper in healthcare interiors is not just limited to door handles and fittings. In Japan, architect Ken Takahashi clad the walls of a fever clinic in brass, a gold-coloured alloy of copper benefiting from its antimicrobial properties.

Artwork by Adaesi Ukairo, to be installed at the ward entrance.

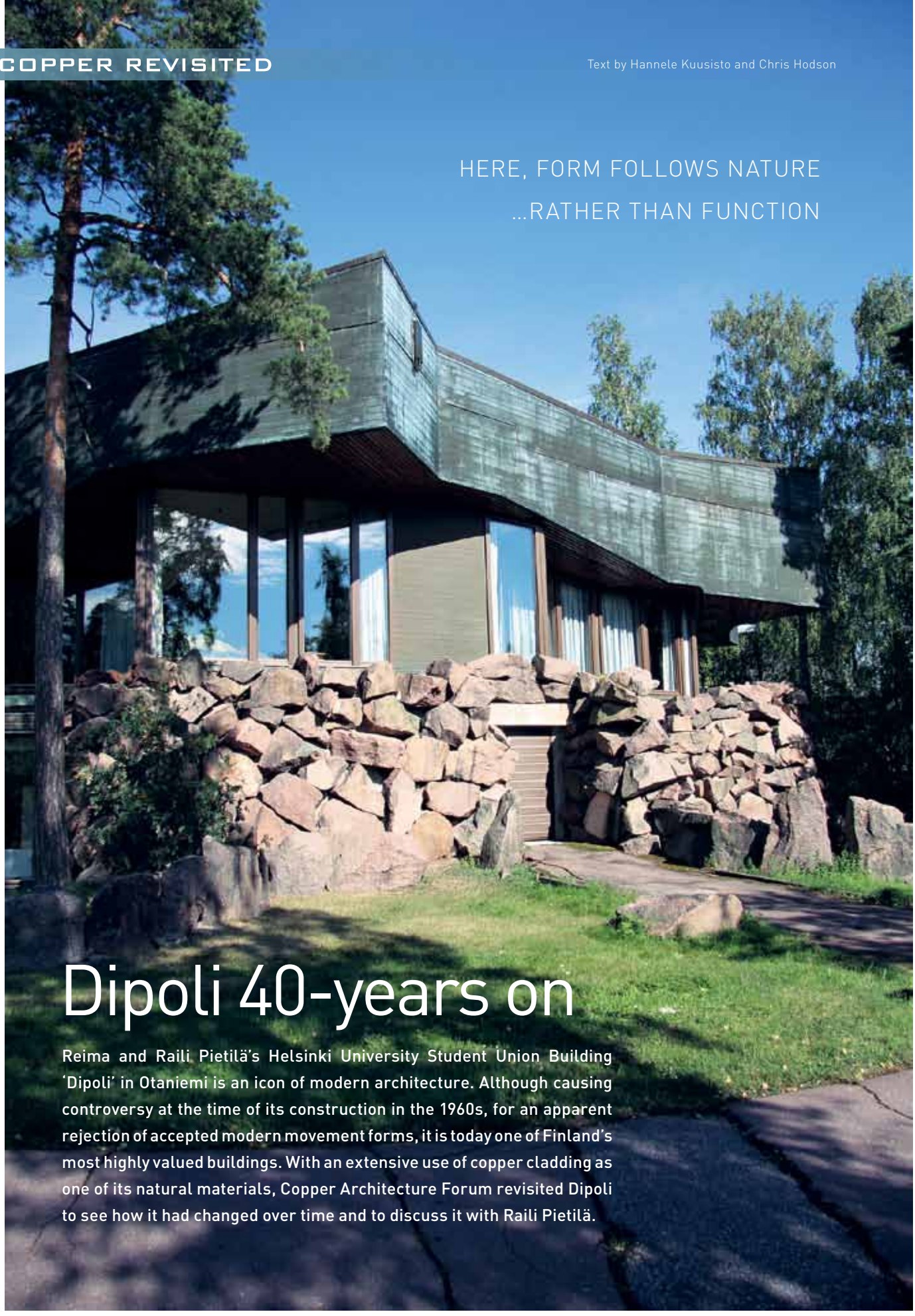
Dr Edenborough explains the role copper will play: "In a bid to set the gold standard for infection prevention in Cystic Fibrosis, we felt that copper could make an important contribution towards minimising surface contamination from hands or coughing, killing potentially dangerous pathogens in between cleans and augmenting rigorous hygiene protocols. It is our hope that, in this way, copper will help reduce the risk of infections."

"Common materials such as plastics may look clean, but they have no inherent antimicrobial efficacy," explained Rebecca Haverty of Race Cottam Associates, the project architects. "Antimicrobial Copper can help to fight infection, so we were very keen to use it. It seems almost too good to be true, and yet it's proven to work. The range of alloys available means any project can gain from the benefits of copper. We chose to use an almost pure copper to make a statement, but a nickel-silver finish would look good too."

> *"It seems almost too good to be true, and yet it's proven to work"*

The copper industry has developed a unifying brand name, Antimicrobial Copper, and symbol to help designers look out for products that are made from this most effective touch surface material.
More information can be found on the dedicated website: www.antimicrobialcopper.com

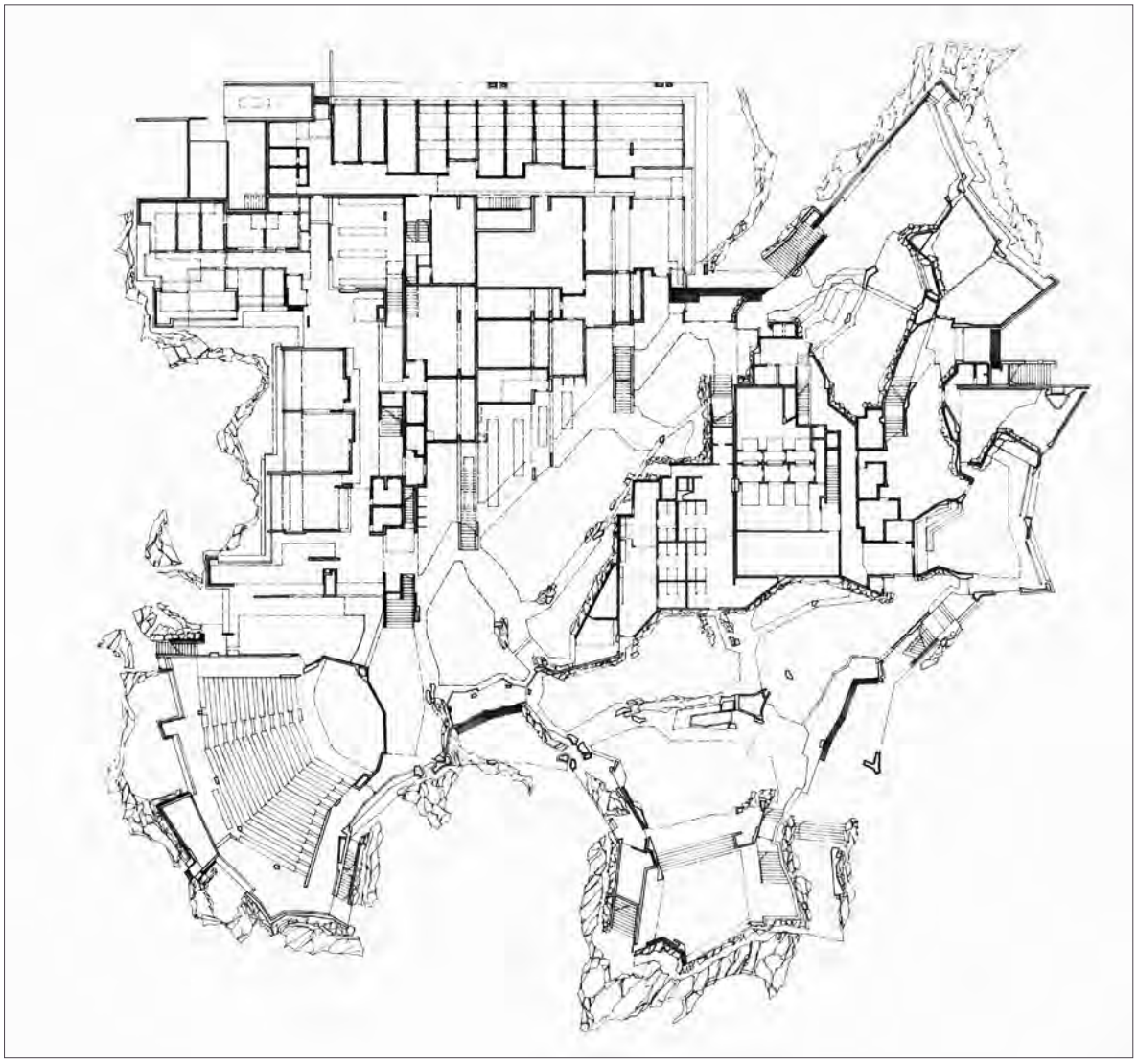
Text by Hannele Kuusisto and Chris Hodson



HERE, FORM FOLLOWS NATURE
...RATHER THAN FUNCTION

Dipoli 40-years on

Reima and Raili Pietilä's Helsinki University Student Union Building 'Dipoli' in Otaniemi is an icon of modern architecture. Although causing controversy at the time of its construction in the 1960s, for an apparent rejection of accepted modern movement forms, it is today one of Finland's most highly valued buildings. With an extensive use of copper cladding as one of its natural materials, Copper Architecture Forum revisited Dipoli to see how it had changed over time and to discuss it with Raili Pietilä.



Floor Plan

THE CAVEMEN'S WEDDING MARCH

The town plan for the area was produced by Alvar Aalto in 1949. The Dipoli building resulted from a design competition, won by husband and wife Raili and Reima Pietilä in 1965 - their first project together, called the "Cavemen's Wedding March". Critics have commented that the architects turned their backs on the modern movement and functionalism, in favour of a more romantic response to the building's natural surroundings. It is set in an archetypical Finnish landscape with tall pine trees and rugged rocks. However, the design satisfies the functional aspects of a complex programme, in particular acting as a link between living and teaching buildings with a strong diagonal route acting as the dynamic generator of the plan form. This diagonal separates rectilinear, functional areas to the north from the common areas to the south which take on organic shapes responding directly to the topography. Here, form follows nature rather than function.

A NEW ARCHITECTURAL LANGUAGE

Reima Pietilä was certainly regarded as an innovator and developed a new architectural language at Dipoli with a timeless quality, integrating the building with its surroundings. The free-form, deeply overhanging roofs with copper edges seem almost to span between the trees, walls merge with the rock landscape and fenestration works to the rhythm of the trees. The design for Dipoli was the result of endless discussions and keen observation of the surroundings by the Pietiläs. The landscape and its colours and textures played a key role in the extensive use of natural materials such as rock and timber. Large boulders were hewn from the surroundings and stacked high by the walls of the building. Rock is also used inside which, together with the large windows, draws the landscape right inside the building.

Many facades are copper-clad using narrow strips laid irregularly, almost like timber boarding. In addition to Dipoli, Tampere City Library called "Metso" and the Mäntyniemi Presidential Residence are among the best-known buildings in Finland designed by Architects Pietilä and copper plays an important role in defining the architecture of them all.

The choice of copper for the Dipoli façade was a well thought out decision and natural changes in the material over time were considered from the start. Today – over forty years later – Raili Pietilä still regards copper as a vibrant, beautiful and enduring material as the facades of Dipoli start turning green little by little. The fact that it took this long before patination got underway shows that the air is clean and unpolluted, despite its proximity to the sea and a major city. Raili Pietilä sees the patination of copper simply as part of the cycle of life, like the graying hair of an ageing friend. She considers Dipoli to be her favourite amongst all the copper works designed by the Pietiläs.

Architects: Raili and Reima Pietilä
Photos: Joonas Pirhonen

Inspirational architecture and design with copper from:

Austria • Belgium

Czech Republic • Denmark

Finland • France

Greece • Germany

Holland • Hungary

Italy • Luxemburg

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www.copperconcept.org