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JSPE Magazine Quarterly

The Japan Society of Professional Engineers

Topics: President's New Year's Message

— Contents —

Fuji looking down

It is unlikely that you will see Mt. Fuji from directly above. Most of the time, you can see it from below, but if you look at it from above, you can see things that you can't normally see, such as the crater and the surrounding clouds. Even as an engineer, what I think is right based on my field of expertise and experience may be too much or too little when I look at it from another perspective. In that sense, it is a piece that reminded me of how important diversity is.

1 Topics: President's New Year's Message

Aiming to be an organization that can always provide value to engineers

Happy New Year to all members. 2023 is the first year of the post-corona era, so I think there have been major changes in both work and private life. I myself moved to Tokyo for my third job change, and my life changed drastically. As you can see in the photo, I am completely addicted to poker and probability theory, and I strongly feel that engineers have the potential to apply it to anything.

In order to achieve the VISION2030 formulated in fiscal 2021 to "create a system in which members mutually help each other not only in the technical field but also in the individual study of individual engineers, taking advantage of the diversity of generations, fields, and races," we have been building a system that allows engineers in Japan to sustainably receive the necessary support. In 2023, JPSE has identified the challenges of diversifying and disseminating information from members to each other rather than unilaterally disseminating information, and breaking away from a management system that relies on board members, and has been working under the slogan of "maximizing member value with an eye on the future."

● Mutual dissemination of information between the association and members: The exchange of information between JSPE and members was one-sided regarding events such as seminars, but I feel that the use of NSPE's annual membership fee subsidy system has created a limited flow of information dissemination from members to members and from members to associations. In addition, once the revision of the JSPE website is completed, a forum function will be released that allows discussion among members, so new knowledge will be born through multifaceted discussions. In addition, member-led study groups that started in 2021 are also self-propelled, and are becoming new places for learning that are not sponsored by the association.

●Strengthening the management system: We are gradually switching from an operation that relies on the resources of directors to a management system that does not depend on the resources of directors by expanding the scope of work to be outsourced. In 2023, we will conduct a trial to outsource communication with members before and after the seminar (application ~ questionnaire), reduce the management resources required to hold JSPE

events, and break away from the current system of relying on board members. Although it is difficult to outsource some parts related to personal information, we recognize that it is essential to improve the efficiency of the association from the perspective of continuity, and we will further promote it in the future.

In 2024, I will conclude my second term as President. As not only the chairman of JSPE, which is a domestic organization that can balance social development and human welfare, but also as a member, I would like to keep in mind what value we are providing and whether we are providing that value that is in line with the times. In order to increase the level of vitality as an organization and further enhance the value of JSPE, I would like to ask all members to participate more actively than ever before as club members and officers. We hope that we can play an active role together with our members, and we will replace it with a New Year's greeting.

January 1, 2024 President

Tokoh Nishikubo

2 Ethics

SUMMER 2023

The Ethics of Billing for Services
ON ETHICS: YOU BE THE JUDGE / CONTEST

Can a lump sum contract for professional engineering services pose an ethics violation?

Harry E. Hughes, P.E., submitted the winning entry in the 2023 NSPE Milton F. Lunch Ethics Contest. Hughes is the owner of Owl Creek Engineering LLC in Thermopolis, Wyoming. His winning entry addressed the ethics of billing for forensic investigations.

The Milton F. Lunch Ethics Contest provides an opportunity for NSPE members to put their ethics knowledge to the test on topics that present ethical challenges such as artificial intelligence, climate change, and the industrial exemption. Hughes received $2,000 and a certificate.

Facts

Engineer A, a forensic engineer, is hired by Client H to analyze the collapse of a deck. The contract specified hourly billing. Engineer A
inspects the collapse, collects the appropriate data, completes the analysis, prepares a report, and bills Client H. A month later, Engineer A is hired by Client F to analyze the collapse of a second deck. Again, Engineer A inspects the collapse and

2023 年夏

技術サービスの請求の倫理
あなたが審判／コンテスト

一括契約が専門的なエンジニアリングサービスにおいて倫理的な違反を引き起こす可能性があるか？

Harry E. Hughes, P.E.は 2023 年 NSPE Milton F. Lunch 倫理コンテストに優勝作品を提出した。Hughes はワイオミング州サーモポリスの Owl Creek Engineering のオーナーである。
彼の優勝作品は製造物欠陥調査の請求に関する倫理に焦点を当てたものである。

Milton F. Lunch 倫理コンテストは NSPE 会員が人工知能や気候変動及び Industrial exemption[*1] のトピックスに対して彼らの技術者倫理の知識のテストを行う機会を提供した。Hughes は$2,000 と証明書を獲得した。

状況

PE A は欠陥調査技術者で、顧客 H にデッキの崩壊分析のために雇われた。契約書では時間ごとの請求が指定された。
PE A はデッキの崩壊現場を調査し、適切なデータを収集し、分析を完了し、報告書を作成し、クライアント H に請求した。
一ヶ月後 PE A は二番目のデッキの調査のため顧客 F に雇われた。PE A はデッキの崩壊現場を調査し、適切なデータを収集した。

collects the appropriate data. Engineer A quickly realizes that the two collapses are almost identical. Engineer A presents a lump sum contract for the same amount as the invoice to Client H. Engineer A edits the previous, Client H report, changing names, dates, measurements, etc., and finalizes the second, Client F report in less than an hour. Engineer A believes that the lump sum amount is appropriate as a billing for the value of the report, regardless of the time spent.

PE A はすぐにこれら二つのデッキの崩壊はほぼ同一であることに気づいた。
PE A は顧客 F に対して顧客 H への請求書と同額の一括契約を提示した。PE A は顧客 H に対して提出した報告書を編集し、顧客名、日付、寸法などを変更し、わずか 1 時間以内で顧客 F 用の報告書を完成させた。
PE A は報告書の価値に対する請求として一括契約の金額が妥当であると考え、時間のかかり具合に関わらず、その金額を請求することが適切だと考えた。

Question

Was Engineer A's lump sum contract with Client F ethical?

質問

顧客 F に対する PE A が提出した一括契約は倫理的か？

NSPE Code of Ethics References

Preamble: "…Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare…"

NSPE 倫理規範

序文 "…エンジニアによって提供される役務は、誠実、公平、公正、及び不偏であることが求められ、かつ公共の衛生、安全、及び福利に貢献しなければならない…"

Section I. Fundamental Canons
Engineers, in the fulfillment of their professional duties, shall:

Section I. 根源的規範
エンジニアは、自身の専門職としての責務を遂行するにあたり、以下を規範としなければならない。

1. Hold paramount the safety, health, and welfare of the public.

1.公共の安全、衛生、及び福利を最優先とする。

4. Act for each employer or client as faithful agents or trustees.

4.自身の雇用主あるいは顧客のために、誠実な代理人または受託者として行動する。

5. Avoid deceptive acts.

5.欺瞞的な行動を回避する。

6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to

6.この専門職の名誉、評判、及び有用性を高めるため、自身の誇りと責任を持ち、倫理的かつ法を遵守し

enhance the honor, reputation, and usefulness of the profession.

た振舞いを示す。

Section II. Rules of Practice
Paragraph 2.a. "Engineers shall undertake assignments only when qualified by education or experience in the specific technical fields involved."

Section II. 実務規定
Paragraph 2.a.:エンジニアは、教育や経験により裏づけされた特定の分野に関係する役務のみを引き受けなければならない。

Section III. Professional Obligations
Paragraph 1.f. "Engineers shall treat all persons with dignity, respect, fairness, and without discrimination."

Section III. 専門職としての義務
Paragraph 1.f.:エンジニアは、他の人達に対して、尊厳と敬意を持ち、公正に差別なく接しなければならない。

NSPE Board of Ethical Review (BER) Case References
BER Case No. 65-6 – In the third paragraph of the discussion on this case the BER opines as follows: "…we believe that the reasonable conclusion must be that it is within the prerogative of the individual engineer to determine the fair value of his services, and charge accordingly…"

NSPE 倫理委員会(BER)の事例

BER Case No. 65-6
本事例の第三段落において、BER は以下のように意見している。「...私たちは、合理的な結論として、個々のエンジニアが彼のサービスの公正な価値を決定し、それに応じて請求する権限があると考えている」

Discussion
This case poses an interesting question regarding equitable and/or ethical fees for services. First, there is nothing in the facts to suggest that Engineer A is not fully qualified to undertake the forensic investigations for Clients H and F. Further, there is nothing in the facts to insinuate that his hourly billing to Client H was, in any way, inappropriate. Consequently, Engineer A's services to Client H appear to comply with all elements of the Preamble listed above. Upon careful review of the Fundamental Canons also enumerated above

議論
このケースは、公正かつ/または倫理的なサービス料に関する興味深い問題を提起している。まず、エンジニア A がクライアント H およびクライアント F のための欠陥調査を遂行するのに十分な資格がないと示唆する事実はない。さらに、クライアント H へのエンジニア A の時間ごとの請求が何らかの形で不適切であったと示唆する事実もない。

したがって、エンジニア A のクライアント H へのサービスは、上記にリストされた前文のすべての要素に準拠していると思われる。同様に、前述の根源的規範（小項目 1、4、5、および 6）を注意深く検討すると、エンジニア A のクライアント H へのサービスはそれぞれの教義

(Subparagraphs 1, 4, 5, and 6) it appears that his services to Client H also comply with each and every creed contained therein.

にも準拠していると思われる。

Specific compliance is noted with regard to equity, since there is nothing in the record to indicate any dissatisfaction with his hourly billing to Client H; in other words, the facts clearly indicate that Client H got what he paid for.

特に公正性に関しては、クライアント H への時間ごとの請求に不満があったと示す記録がないため、準拠しているとみなされる。言い換えれば、クライアントHは支払った価値を確実に受け取ったということである。

Now comes the ethical question of billing for his services to Client F for investigation of the second deck failure. Again, the facts are clear that Engineer A conducted an appropriate forensic review of the second deck failure; including field inspection, data gathering, forensic and technical analyses, and report preparation. Because of the similarity of the two decks and the two deck failures (the facts say "almost identical"), he was able to reuse much of the information he had developed for Client H's report, although he had to change names, dates, measurements and technical analyses using the new data from the second deck failure. His decision to negotiate a lump sum fee for services for Client F, using the same total billing amount of his hourly charges for Client H, leads to the ethical question at hand in this case; Was Engineer A's lump sum contract with Client F ethical?

ここで倫理的な問題が浮上する。エンジニア A が二番目のデッキの崩壊の調査のためにクライアント F に対して請求することに関してである。再び、事実は明確で、エンジニア A は二番目のデッキの崩壊に関する適切な製造物欠陥な調査を行った。これは現地調査、データ収集、法的および技術的な分析、および報告書の作成を含んでいる。両方のデッキ自体とそれらの崩壊がほぼ同一であるという事実から、エンジニア A はクライアント H の報告書のために開発した情報の大部分を再利用することができた。ただし、二番目のデッキの崩壊からの新しいデータを使用して、名前、日付、寸法、計測値および技術的な分析を変更する必要があった。エンジニア A がクライアント F とのサービスに対する一括契約を交渉し、クライアントHの時間ごとの請求総額と同じ金額を使用したことは、このケースにおける次のような倫理的な問いかけにつながる。「エンジニア A のクライアント F との一括契約は倫理的であっただろうか」。倫理規範に言及すると、上記で挙げた倫理規範のセクション II、段落 2.a によれば、エンジニア A は彼が引き受けるすべての仕事において、特定の技術的教育と経験を利用するように求められている。そのため、クライアント H の最初のデッキ崩壊の製造物欠陥評価で得た技術経験は、クライアント F の二番目のデッキ崩壊の欠陥分析に直接適用されるため、エンジニア A はそれを使用する必要がある。

Referring to the Code of Ethics, Section II, Paragraph 2.a enumerated above, Engineer A is compelled to use all of his specific technical education and experience for any and all assignments undertaken by him. Therefore, he is required to use the technical experience gained on his forensic

evaluation of the first deck failure for Client H, since that experience is directly applicable to the forensic analyses of the second deck failure for Client F.

Moreover, in reference to the Preamble he is compelled to use equity, among other tenets, in providing professional services; "…the **services provided by engineers require …** equity…". I believe billing the same amount to Client F as billed for Client H complies with this doctrine for equity in providing professional services.

Similar to Section II of the Code of Ethics cited above, Section III, Paragraph 1.f. stipulates "Engineers shall treat all persons with dignity, respect, fairness, and without discrimination." In my opinion, "fairness and without discrimination" are applicable to Engineer A's decision to bill Client F on a lump sum basis equaling the total time and materials billing for Client H. The record is clear that his billing on a time and material basis to Client H was both appropriate and fair. The doctrines of fairness and without discrimination are both directly applicable to his decision to bill Client F the lump sum amount. That amount clearly represents the value of the professional services provided by Engineer A (as documented by his time and materials billing to Client H) hence there is no discrimination; and it is clearly fair, since he billed that exact amount previously for essentially the same professional engineering services.

さらに、前文に基づいて、エンジニア A は専門的なサービスの提供において、他の原則の中で特に公正さを行使することが求められる。"...エンジニアによって提供される役務は...公正であることが求められ..."。私は、クライアント F に対してクライアント H と同じ金額を請求することが、専門的なサービスの提供における公正の原則に準拠していると考える。

上で引用した倫理規範のセクション II と同様に、セクション III、パラグラフ 1.f では、「エンジニアは、尊厳、敬意、公正さをもって、差別なく、すべての人に接するべきである」と規定されている。私の意見では、「公正さ、および差別なく」の原則は、エンジニア A が顧客 F に対して、顧客 H への請求と同じ時間と材料に基づく一括請求をする、というエンジニア A の決定に適用されている。クライアント H への時間と材料の請求が適切かつ公正であったことは記録に明記されている。公正さ、および差別なくの原則は、どちらも彼がクライアント F に対して同じ一括契約の金額を請求するという彼の決定に直接適用されうると考える。その金額は明らかに、エンジニア A が提供した専門的なサービスの価値を示している（クライアント H への時間と材料の請求によって文書化されている）。したがって、差別はなく、公正であると言える。なぜなら、彼は以前に本質的に同じ専門的なエンジニアリングサービスに対してまったく同じ金額を請求していたからである。

*1 Industrial exemption: 本来ライセンスを持ったエンジニアのみが提供しうるプロフェッショナルサービスであっても、当該エンジニアが企業等に所属する場合にはその要件が免除されるという特例措置。

参考記事

More You Be the Judge Articles
The Ethics of Billing for Services (October, 2023)
Drinking Water Safety (July, 2023)
The Limits of Campaign Contributions (September, 2022)
A Personal Choice (May, 2022)
Eye in the Sky (January, 2022)

Translate PE0081 H.Kanno
Translation Supervisor PE0145 Y.Suzuki

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翻訳：PE0081 神野
監訳：PE0145 鈴木

<本 NSPE 記事に対する Ethics reviewer のコメント>

今回の Ethics の事例は類似のエンジニアリングサービスに同額の請求をすることが倫理上問題になるか否かの議論である。一般的にメーカーとしては、最初の製品は強度計算やさまざまな解析を行い、製作図を作成し、製造面でも試行錯誤を行うので、手間暇がかかり利益も出ない。リピートオーダーを受注してやっと利益が出る。本事例はリピートオーダーの場合、請求金額は最初の製品の価格と同一で良いかよいか、との議論と同じであり、メーカーとしては同一金額での請求は妥当である。

3 Member's report: Technical Writing in English

Yu Suzuki (PE-0145, Electrical)

The recent progress of AI-based translation sites is really remarkable. All you have to do is pop the Japanese and fill in the box as if you were putting laundry in the washing machine, press the Enter key, and you will get a beautifully translated English sentence. I don't know what to hide, but when I write articles for NCEES, I've been indebted to "G-000e" and "C-0000t" (sweat). However, even so, when I look at the Japanese that comes out when I pop in an English sentence, I wonder if it is proper English after all.

This time, I would like to focus on the theme of "the distinction between A and the" that worries Japan. When you first learned English in junior high school, you were probably taught things like "A for the first appearance, THE for the second and subsequent times," or "A for things that cannot be identified, and THE for those who can." However, there are many cases that cannot be solved by that, and it can be difficult to get lost.

In writing this column, I searched various websites, but I thought this was the most convincing, so I will introduce it first. How to fully understand the difference between "A and the" that Japan people are not good at There are many misunderstandings! It is difficult to cope with mere memorization and familiarity | Learn English | Toyo Keizai Online (toyokeizai.net) There are many useful things written about it, but the key is that "the core of THE is the idea of 'common understanding'" and "The feeling of using THE if you want everyone to say 'Se~no...' at the same time". I see. Examples are given as follows:

- The Sun rises in the east. "The sun rises from the east" Both the sun and the east use "the" because they make everyone finger it.
- Who will bell the cat? "Who's going to put a bell on that cat?" Ex: Who's going to do that dangerous work?In "Aesop's Tales," the cat is a cliché that means "who will be in trouble," from the story of a mouse who had trouble deciding who would put a bell on the cat's neck.

And so on.

So what about these? The number in parentheses can be A, The, or left blank.

- When (1) moving car turns round (2) corner to (3) left, in what direction do (4) occupants tend to fall? (which direction does driver drop if the cur turning left?)

The answer is... (1) It depends on the situation, but it is likely to be A, (2) This also depends on the situation, but it may be A, (3) the, and (4) the. What about you? If a particular car that you point to turns a certain corner, which you also point to, then (1),

(2)It could be the. A person who is looking at a car that looks like it is attacking the mountain as a gallery will say, "That car is dangerous, won't the guy who is riding in that corner jump out because it is too aggressive?" If it was a scene (it would be impossible if it wasn't a case where you don't wear a seat belt in an open car...) the. (3)There are various things on the left... It won't be, so it's the. (4) What is? This is the most difficult to judge. You may be tempted to leave the occupant blank because you can't usually identify the occupant, or you won't let that occupant finger you finger. However, as a physical phenomenon, all occupants will be treated as a lump together, so in this case, it would be appropriate to use "t he" as a reference. By the way, this is a sentence that was randomly pulled from the web by a person who seems to be a native English speaker, and (1) ~ (4) was A, A, THE, THE, respectively. I don't know how much this person uses proper grammar...

Finally, let's take a quiz. How about something like this? This is an excerpt from the Summer 2023 issue of NSPE Magazine.

Proposal Development. (1) Firms (firms) are using AI to generate (2) boilerplate for (3) competitive proposals. (4) Caution (caution) is to ensure that it doesn’t become obvious to (5) recipient that it is (6) boilerplate generated by (7) machine. Done correctly, however, (8) content created by AI and edited by (9) human will more efficiently populate (10) more mundane parts of (11) proposal. (Generate a proposal.) Companies are using AI to draft boilerplate for competitive proposals. Care should be taken not to make it clear to the recipient that it is a boilerplate drafted by a machine. However, if done correctly, AI-created, human-edited content can create more common parts of the proposal more efficiently. I'm sure you've been making proposals like this lately. The usage in the original text is as follows. Did you answer all the questions correctly? I'm sure it wasn't that easy.

(1) -、(2) a、(3) -、(4) The、(5) the、(6) a、(7) a、(8) -、(9) a、(10) the、(11) a。

4 Board meeting Topics, HP and SNS News

JSPE Secretariat

Board Topics

The following items were discussed at the ordinary meeting of the Board of Directors in November. Details of each matter are posted on the member site – JSPE Board of Directors Meeting Minutes. https://www.jspe.org/member/report/

The January Board of Directors meeting will be held on Sunday, January 7, 2024. If you are a member who would like to participate as an observer in the Board of Directors, please contact the Secretariat managers@jspe.org.

[November Ordinary Board of Directors Meeting]

Agenda items

◇ Number of members

◇ Response to PE introduction from Meiwa Corporation

報告事項

◇JSPE Day の運営補助依頼の結果

◇2023 annual upper period の予実 comparison

◇Seminar Report

◇ Trial results of seminar secretariat business agency

◇ Payment status of annual membership fee

◇ Feedback on PE / FE examination registration consultation

◇Schedule for next year's general meeting decided

◇ Sharing the progress of HP revision

Homepage, SNS, member mail

Thank you for using the JSPE website and SNS. The Public Relations Subcommittee strives to provide you with the latest information that is useful to you, such as the renewal of your PE examination registration, through the website, but if you have any comments or impressions that it would be useful if this was posted on the JSPE website, or if the information posted on it was useful, please contact the Public Relations Subcommittee public.2007@jspe.org Thank you.

5 CPD seminar reports

JSPE Ministry of Education

The 357th Technical CPD Seminar

Date & Time: Saturday, October 14, 2023 14:00~16:00
Number of participants: 34 (31 PE members, 1 PEN member, 2 non-members, lecturer)
Format: Web-delivered only
Title: how to face climate change
Lecturer: Professor, Research Center for Future Initiatives, The University of Tokyo, Department of Earth Systems, National Institute for Environmental Studies
Senior Chairman Researcher Mr. Jiang Shou Zhengduo

Starting with basic details such as the mechanism of global warming and the contents of the Paris Agreement, he explained in a very easy-to-understand manner the results of various surveys conducted by the IPCC and other organizations. In particular, Dr. Emori said, "Decarbonization is not a goal that can be achieved by reluctant efforts, and a "major transformation" in society needs to occur. This opinion was also understandable from the various data that was explained this time. In the Q&A session after the lecture, he said, "I was shocked that Japan is backward in climate change measures compared to the world average," and "The shift to EVs is progressing at a rapid pace, but how much contribution is expected to be made to decarbonization?" "Even if Japan alone makes efforts to reduce emissions, the effect will be insignificant, so it is necessary to look at the world as a whole and find and implement effective measures. There were lively questions and comments. With regard to global warming, it is essential to first introduce appropriate policies, but this was a valuable opportunity for individuals and companies to reaffirm that it is an issue that cannot wait.

FY2023 2nd English Seminar

Date & Time: Sunday, November 5, 2023 9:00~12:00
Number of participants: 12 (PE members: 11, lecturer)
Format: Web delivery only
Title : Canadian Engineering Schools and their Research
Lecturer:Colin Dale 氏
Abst:
By using topics related to engineering in Canada as the subject, the aim is not only to learn English, but also to deepen the understanding of the actual situation of overseas engineering as a PE. The lecture will be conducted online by a native instructor from Canada,

but the instructor is also fluent in Japanese, so please use it as an opportunity for self-improvement.

As in the previous year, we invited Prof. Colin as a lecturer and held the second English seminar this year. This time, he focused on engineering education at major universities in Canada. Through the seminars, I was able to investigate the research being conducted at Canadian universities and learn that the curriculum of Canadian students is very dense. In addition, I was explained that Canadian universities do not have entrance examinations, but are open to the public and outside the country, where anyone can enter if they get a score above the stipulated score in a national exam. In addition, high school students actively participate in various contests to not only improve their own skills, but also learn to increase their contact points with companies. I felt once again that it is necessary for JSPE to revitalize the association and improve the sustainability of the association by having students who aim to become engineers join the club in the future. I would like to take this opportunity to thank Dr. Colin for providing useful information this time.

JSPE DAY 2023 – DAY 1 (第 359 回 CPD セミナー)

■Lecturer and schedule: Saturday, November 18, 2023

■Title and abstract:

Mr. Nishikubo :「NSPECON2023 の参加報告 / NSPECON2023 in Kentucky」

The following is an overview of the participation report of the NSPECON2023 held in Louisville, Kentucky on August 2-5, based on my recent participation experience. This time, it was the second face-to-face format after Corona, and it was a full content that included a tour that could not be held until last year, and it was a very valuable experience for one engineer, so I would like to take this opportunity to introduce it.

If you are interested in participating in next year or beyond, or if you are interested in NSPE, please take advantage of this opportunity to clear up any questions you may have.

Mr. Nishimura: "Plastic piping engineering for the realization of a low-carbon society"

In recent years, the environmental advantages of plastic products have been greatly reviewed in developed countries in Europe and the United States, and the active use of plastic materials has been expanding in various fields. When properly designed and thoughtful plastic products are compared to products made of other materials, the rifle cycle (LCAThis is because many papers have been published that the environmental impact of evaluation is overwhelmingly advantageous, and the true value of plastic materials is being reevaluated. In this presentation, we will first explain the characteristics that are important to note in the design of using plastic materials in contrast to metal materials. Next, we will

explain the main points of plastic piping engineering by quoting the contents of the design standards "Planning Fundamentals" that George Fisher, one of the world's largest manufacturers of plastic piping, has made available to engineers around the world.

Mr. Takamatsu: "The Value of Global Technology Communication"
With the aim of "bringing good Japan technology to the world and bringing good technology to the Japan of the world", after obtaining PE and PMP certifications, I changed jobs from a Japanese electronics manufacturer to an overseas automation manufacturer.
As an overseas global program manager for an automotive manufacturing plant, I had the privilege of working with overseas PEs/PMPs. Currently, we are spreading Digital Twins technology to Japan with the aim of improving productivity and reducing risks in Japanese manufacturing companies. I would like to introduce the difficulties and the effects obtained.

Mr. Fujita: "Looking back on my 25 years as a power plant engineer"
Since joining Mitsubishi Heavy Industries Takasago in 1999, he has been consistently involved in the engineering of power plants, and next March will mark the milestone of 25 years. Starting with water treatment facilities, I was able to gain a wide variety of experience related to thermal and nuclear power plants, such as heat exchanger development, plant heat cycle study, layout planning, and system planning. I also visited various countries. I would like to introduce the universal things that I noticed in the process and what I am currently working on based on my experience so far.

■ Implementation Report:
Participants: 33 PE members, 1 PE member, 3 non-members
Mr. Nishikubo:
We received a report on the contents of the NSPE General Assembly, and we were able to understand the recent meeting. I felt that the tour was well thought out because it seemed to be an introduction to technology, including the solution of problems in each city, rather than a simple tour. It takes 8 days from departure to return, so it is difficult to participate personally while working. On the other hand, it is meaningful to participate in NSPE, which is the parent organization of JSPE, so I would like to consider taking advantage of JSPE's subsidy system. Thank you very much for taking time out of your busy schedule to lead JSPE activities.

Mr. Nishimura:
Plastics have a strong negative image of the environment, but if they are properly evaluated, it is clear that it is appropriate to use them according to the application. Plastic bags have a smaller environmental impact than paper bags, polyethylene pipes do not break even if

bent by earthquakes, do not corrode, and have higher performance than metal pipes, and flexible on-site construction by electrical welding. Thank you very much for your active engineering activities.

Mr. Takamatsu:
Some of the participants have very few opportunities to interact with PMPs and PEs, but we found that PMPs and PEs have become the standard in the plant-related field and have become the basis for communication. I think it would be interesting to have a real department and a virtual department. I've heard the term Digital Twins a lot, but I felt that it was somewhat unrealistic. In today's talk, you introduced some specific examples, and I got an idea. I think it will take a lot of time and money to create Digital Twins, so I thought it was important to find a balance. Thank you.

Mr. Fujita:
It was interesting to hear many stories of hardship and experience. In particular, the microbial corrosion of stainless steel was fresh. I am very sympathetic to the last point that was made "machines do not lie" and "do not easily determine factors, but analyze them objectively". The phrase "engineers are the ones who solve customer problems and realize their requirements" stuck with me. Thank you very much for your presentation.

JSPE DAY 2023 – DAY 2 (第 360 回 CPD セミナー)
Date & Time: Sunday, November 5, 2023 9:00~12:00

■Title and abstract:
Mr. Miwada: "The Challenge of Being a Fire Prevention Engineer"
A mid-level employee who has been working for a small and medium-sized manufacturer for 10 years talks about the current situation where he is working hard to call himself an engineer based on the authority of his university mentor and the knowledge he has accumulated during his time in the development department, even though he belongs to the sales headquarters. In addition, we will highlight two recent industry trends in the field of fire protection that have been heavily influenced by the United States: PFAS regulations and legal changes related to lithium-ion batteries. If I have more time, I would like to talk about how to improve the problem of BIM not being used in the work of drawing drawings for quotations.

Mr. Suzuki: "The Future of U.S. Engineers as Seen in NSPE's PE Institute On-Demand"
In a rapidly changing world, where should we, traditional engineers, go? Based on the

hypothesis that CPD (Continuous Professional Development) materials, which are the lifelong education of PEs, reflect the content that PEs "want to learn" and "need" and point to some direction that engineers should take, "PE Institute On-Demand" content analysis was attempted.

Mr. Ki: "Trends and Recent Activities of the Japan Society of Mechanical Engineers ~Power Energy Systems Division~"
The Japan Society of Mechanical Engineers is one of the largest academic experts in Japan with more than 30,000 members, founded in the 30th year of the Meiji Era, and is composed of engineers, researchers, students, and corporate members involved in machine-related technology, which is the backbone of the technological society. The 22 divisions covering academic fields related to machinery and the 8 branches that focus on regional revitalization activities form the warp and weft, and they plan and implement lectures and workshops, enlighten society through citizen forums, and contribute to the world through international conferences, and contribute to the world through mutual academic improvement and the results of their achievements to society. Recent topics in the activities include a decrease in the number of members and the revitalization of departments (new division system, cross-academic themes, collaboration with other academic societies, diversity, etc.). The Power and Energy Systems Division, to which I belong, is a mid-sized department in which members from industry, academia, government, the private sector, and various basic technologies interact with each other and work to contribute to society from the perspective of a smooth supply of energy. In this lecture, we will introduce the recent activities of the society and its division.

■Participants: 34 (PE: 30, PEN: 1, FE: 1, Non-members: 2)

Mr. Miwada: He explained in an easy-to-understand manner why he wanted to become a PE, the characteristics of the fire protection industry in Japan, his work experience in each department, and industry trends influenced by Europe and the United States. I was able to understand that Japan's regulations on fire prevention are unique compared to those in the United States, that the United States has been greatly influenced by them, and that there is a demand for a review of related standards as demand for lithium-ion storage batteries increases due to the spread of electric vehicles. Overall, despite unavoidable circumstances such as reorganization of departments within the company and changes in the content of work, it was a lecture that conveyed his passionate desire to become a PE as soon as possible and to do his best as an engineer in his career. In addition, there was a senior PE of Fire protection among the participants, which was a valuable opportunity for exchange. Thank you very much for your time today.

Mr. Suzuki: He explained the technology trends and what is required, the ideal form of traditional PE, and the topics covered by NSPE's "PE Institute on-demand". In particular, Mr. Suzuki, who plays a role as a "Sherpa" within the company, spoke in a way that drew me in with his unique voice, such as that there seems to be a lot of room for traditional PEs to contribute to the industry that will grow in the future and the priority investment issues of the Ministry of Economy, Trade and Industry, and that what will be questioned in the future is "individual competence." It was interesting to see that NSPE's PE Institute on-demand covers many buzzword topics such as engineering ethics, sustainability, diversity, global warming, and renewable energy, as well as new technology topics such as AI, so it was interesting to hypothesize that these may point to the direction that traditional PE should take. At the end of his lecture, he said, "American society is experiencing the hollowing out of manufacturing faster than Japan, and now is the time to learn from the United States." Thank you very much for your time today.

Mr. Ki: He gave a lecture on the introduction of the Japan Society of Japan Mechanical Engineers, its recent activities, and the recent activities of the Power and Energy Systems Division. It is one of the largest academic professional groups in Japan with a long tradition and more than 30,000 members, but as a recent topic, it was said that the long-term trend of declining the number of members that has continued since before the coronavirus pandemic has not been stopped, that the continuation of corporate members is an issue, and that improving the retention rate of student members after graduation is an important issue. He explained that a wide range of actions are being taken to address these medium-term issues, including trials of a new departmental system, cross-academic themes, collaboration with other academic societies, and initiatives by working groups. One of the reasons why young members quit was that "it is too large (22 divisions) to grasp" and "I don't know what it is useful for," but on the other hand, Mr. Ki's words, "Because it is a large society, engineers from various fields can discuss it, and this is where the raison d'être of the JSME lies" left a lasting impression on us, and we recognized that this is a point that JSPE should keep in mind. I wish you all the best for the further development of your society.

FY2023 technical facilities see the Society

Date: Friday, December 1, 2023 13:30~16:00
Location: Toshiba Elevator Corporation's Fuchu Plant
Participants: 7 (7 PEs)

We toured the facilities of Toshiba Elevator Corporation's Fuchu Plant, which is located in

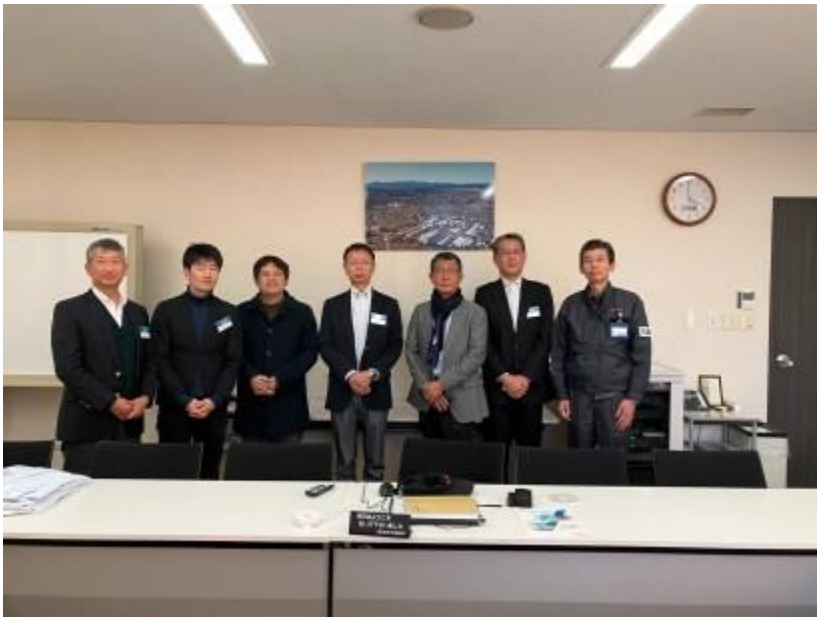
Toshiba Corporation's Fuchu Plant. Toshiba Elevator started its elevator business in 1966. The company has two factories and reliability evaluation facilities in Japan, sales and service bases throughout Japan, and overseas factories and sales bases in China and Malaysia. What seemed to be unique compared to other manufacturing industries was that it was not possible to inspect the finished product in the factory, but to ship the parts in the order in which they were assembled locally, and to install and adjust them locally. In other words, since supplies such as hoisting machines, control panels, rails, platform doors, baskets, lighting, operation panels, and pushbuttons are shipped in the order in which they are installed locally, it was said that the "order of manufacture" ≠ "order of shipment" would be "the order of shipment".

The first place we visited was the Field Training Center, which is a base for technical education for specialists, where education and teaching skills related to "installation," "maintenance," and "maintenance" are passed on. I was impressed by the explanation that about 40 actual machines, including not only recent products but also older models that are still in use, are used as teaching materials for maintenance engineers.

The Service Information Center remotely monitors the company's elevators nationwide 24 hours a day, 365 days a year to prepare for and respond to unforeseen situations, including disasters. Using its own app and map system, it provides efficient dispatch instructions in the unlikely event of a "confinement failure" that traps the customer in the car. He explained that in addition to playing a role as a control tower in terms of how to arrange a limited number of field engineers for the enormous amount of elevators, he is also thinking of remotely collecting on-site failure data, analyzing it, and feeding it back to the design to prevent failures.

Finally, we had the opportunity to see the line of panel processing and powder coating. In order to improve production capacity, we were able to get a glimpse of various innovations, such as separating individual production with manual labor and mass production by automation on the panel line, and performing good/bad judgment without human intervention on the painting line.

Even if the elevator was tested for shipment in the factory, the final finished product needed to be adjusted to the building on site, and we were able to recognize that experience and technical skills were essential for this. In that sense, it was a very meaningful tour because I was able to understand that the training and securing of specialized engineers is the lifeline of the business, and that Toshiba Elevator Corporation is also making efforts to respond to these issues. We would like to express our sincere gratitude to Mr. Ikeda and everyone else who guided us this time, as well as to Matsuoka PE, who was a JSPE member and set up the tour of this facility and accompanied us on the day of the tour.



Group photo of participants

FY2023 5th Engineers' Salon

Date & Time: Wednesday, December 13, 2023 19:00~20:05 (Reception until 20:40)
Number of participants: 19 (18 PE members, 1 non-member, lecturer)
Format: Web delivery only
Title: Reflections on 40 years as an engineer
Lecturer: Oka (JSPE member)

It was a presentation that left a strong impression on the life of the lecturer, who was in charge of many construction projects in Japan and abroad as a civil engineer. I was involved in the construction management of a concrete floating bridge in Washington State, and the manager of the local general contractor who strongly led the project at that time was a PE, so I aimed to obtain a PE qualification while stationed in the United States. He tried the JAXA selection test to become an astronaut and passed the first selection, but declined the subsequent selection because he was appointed as a PM during construction work in Mexico. You have worked on the path of renewable energy with a solar power company in the U.S. and a wind turbine manufacturer in Denmark, and are currently working on the development of a large-scale offshore wind power project with foreign capital. All of them were really exciting. I was reminded that in order to contribute to society as a talented engineer, it is very important not only to accumulate years in a careless manner, but also to have an "attitude" toward that goal.
In response to a question from a participant, "What was the best thing about becoming a PE?" he replied, "In this way, I was able to interact with colleagues who have aspirations

and ability," which I took seriously

FY2023 3rd Demon Gold Seminar

Opening day: December 23, 2023 (Sat) 9:00~12:00
Lecturer: Nishikubo Tokoji
CPD & PDU　: 3.0 PDH & PDU
Type : Web (Zoom)
Number of participants: 7 (5 PEs, 1 PEN, 1 non-member, Lecturer)

Theme:
Changes in the Boundaries Between Hardware and Software in Embedded Systems ~ADI Trinamic's Harwired Design~
Boundary condition change between hardware and software in embedded system ~Hardwired design by ADI Trinamic~

Gist:
In embedded system development, the roles of the hardware staff have been divided for many years, with the circuit designer in charge and the software in charge of running the circuit. When we think about the semiconductor devices used, the boundaries between hardware and software are becoming blurred as the boundaries between hardware and software are becoming blurred, as the hardware is incorporating functions that were previously played by software, such as a voltage regulator, in addition to incorporating peripheral passive components into a single chip, such as hardware having a feedback function that stabilizes the output voltage internally, such as a voltage regulator. The reason behind this is that while the software seems to be versatile, the disadvantage is that the larger the program, the more resources are required to verify the combination. In the field of motor control, this trend is also emerging, and Hardwired design, in which control itself is realized by logic circuits, is gradually becoming widespread, and the boundary between hardware and software is changing. In his lecture, he will discuss Trinamic, one of the products of Analog Devices, to which he belongs, and discuss the differences between traditional embedded development and Hardwired design.

Implementation Report:
He explained that while Hardwired design makes it possible to downsize software development that has become bloated and realize rational development, there are functions that can be standardized and realized by Hardwired, and functions that are difficult to achieve with Hardwired because of the company's strength. Many of today's industrial

products have a control function that is expanding. The basis of this is a digital control function by software. In this lecture, it was a very good lecture in which he explained in an easy-to-understand manner that some of the controls will be Hardwired, and that the burden on the designer will be lightened, and that more controls can be developed and used. In addition, there was an impression that the discussion with other members in the workshop format was stimulating and stimulating.

6 Coming Events

JSPE Ministry of Education

For the latest information on this year's events, please check the following URL. https://www.jspe.org/events/

The events of the last three months are as follows.

<project management seminar>
January 20, 2024
February 17, 2024
March 23, 2024

<Tour>
February 10, 2024

<English seminar>
March 3, 2024

<PE/FEexam/registration>
March 16, 2023

< Cboard meeting >
7 January 2024 (Sun)
March 9, 2024 (Sat)

7 Editor's Note

2023 has come and gone, and 2024 has arrived. Your career as an engineer has been +1 year, and I think you can say that you have grown in this area compared to yourself last year. I myself have had many twists and turns, but after 11 years on the motor driver development side, I have moved up in my career from the development side to the side of providing semiconductor devices from the development side. This means that since I have developed drivers myself, I have become a supplier who understands the developer's point of view. I don't know what the future holds, but I think that because I have worked hard as a PE to advance my career, I have acquired my own value that is not bound by the company. I think the same can be said not only for individuals, but also for JSPE as an organization. Everyone in the organization is convinced that if all members are working in the same direction and working hard, that synthesized energy will be of superior value to society. The fact that JSPE's activities are still dominated by directors cannot be overturned, but by using the association for one's own benefit, the value of members will also increase. In 2024, I want to do my best so that when I look back, I can truly say that I have done it. We hope that our members will take the first step of taking advantage of the association and that it will be the best year ever. We hope that this JSPE magazine will be able to boost the careers of our members.

January 1, 2024
Nishikubo Toko(editor)

If you have any questions, suggestions, questions, or contributions, please contact the

Public Relations Subcommittee public.2007@jspe.org.

[Editorial Committee]
Nishikubo (Planning Editor)
Inaba (Board of Trustees Topics, CPD Seminar Report of the Education Subcommittee, Coming Events)
Sato (Ikoi no Plaza), Fujimura (FE/PE Passing and PE Registration Experience, Introduction of New Members)
神野 （Ethics）、鈴木 （Ethics Reviewer）、

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